SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING	PAGE	OF	PAGES
		1		102

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
	DACW62-02-B-0008	[X] SEALED BID (IFB) [ ] NEGOTIATED (RFP)	15 Aug 2002	W38XDD-2150-5664

7. ISSUED BY	CODE	8. ADDRESS OFFER TO (If other than Item 7)	CODE
US ARMY ENGINEER DISTRICT, NASHVILLE CONTRACTING DIVISION PO BOX 1070 NASHVILLE TN 37202-1070 TEL: (615) 736-7276 FAX:(615) 736-7124	DACW62	.CONTRACTING DIVISION(BCN) ATTN: BERYL NEWSOME..... 615-7 NASHVILLE TN 37202 TEL: 615-736-7933 FAX:615-736-7124	DACW62

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and 2 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Estes Kefauver Bldg - A604 until 04:30 PM (Hour) local time 16 Sep 2002 (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE (Include area code) (NO COLLECT CALLS)	C. E-MAIL ADDRESS
	BERYL C NEWSOME	(615) 736-7933	Beryl.C.Newsome@usace.army.mil

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OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)	

14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)

15B. TELEPHONE NO (Include area code)	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE
	☐		

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: ☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 253(c)( )	23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM

24. ADMINISTERED BY (If other than Item 7) CODE	25. PAYMENT WILL BE MADE BY CODE

26. NAME OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	27. UNITED STATES OF AMERICA (Signature of Contracting Officer)	28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

Section B - Supplies or Services and Prices

SCHEDULE B – SERVICES PRICING
INSTRUMENTATION PROGRAM AT KENTUCKY DAM
LIVINGSTON COUNTY, KY

PRICING FOR BASE YEAR – 1 OCTOBER 2002 – 30 SEPTEMBER 2003

CLIN ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
0001	INCLOMETER-CASING	4,148	Linear Foot	_____	_____
0002	INCLOMETER-DOWN-HOLE CABLING, SUPPORT SYSTEM, ETC.	4,148	Linear Foot	_____	_____
0003	INCLINOMETER-SENSOR	34	Each	_____	_____
0004	INCLINOMETER SENSOR MONITORING AND MAINTENANCE, SENSOR-MONTHS	306	Each	_____	_____
0005	TILT METER	11	Each	_____	_____
0006	TILT METER MONITORING AND MAINTENANCE, METER-MONTHS	99	Each	_____	_____

0007	LOAD CELL CONNECTION TO DATA ACQUISITION SYSTEM	0	Each	_____	_____
0008	LOAD CELL MONITORING AND MAINTENANCE, CELL-MONTHS	0	Each	_____	_____
0009	PIEZOMETER TRANSDUCER	1	Each	_____	_____
0010	PIEZOMETER MONITORING AND MAINTENANCE, METER-MONTHS	4	Each	_____	_____
0011	RELATIVE BLOCK MOVEMENT DEVICE (RBMD)	12	Each	_____	_____
0012	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MAINTENANCE, DEVICE-MONTHS	108	Each	_____	_____
0013	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MONITORING	216	Each	_____	_____

0014	SAWCUT	11	Each	_____	_____
0015	SAWCUT MONITORING AND MAINTENANCE, SAWCUT-MONTHS	99	Each	_____	_____
0016	ALIGNMENT PIN MONITORING	12	Each	_____	_____
0017	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE ONE	9	Months	_____	_____
0018	DATA ACQUISITION SYSTEM INSTALLATION - PHASE ONE	1	Lump Sum	_____	_____
0019	WEEKLY REPORTS	2	Each	_____	_____
0020	MONTHLY REPORTS	9	Each	_____	_____

0021	SPECIAL REPORTS	2	Each	_____	_____
		TOTAL			_____

OPTION YEAR ONE – 1 OCTOBER 2003 – 30 SEPTEMBER 2004

1001	INCLOMETER-CASING	0	Linear Foot	_____	_____
1002	INCLINOMETER-DOWN-HOLE CABLING, SUPPORT SYSTEM, ETC.	1,386	Linear Foot	_____	_____
1003	INCLINOMETER-SENSOR	13	Each	_____	_____
1004	INCLINOMETER SENSOR MONITORING AND MAINTENANCE, SENSOR-MONTHS	525	Each	_____	_____
1005	TILT METER	1	Each	_____	_____
1006	TILT METER MONITORING AND MAINTENANCE, METER-MONTHS	1,132	Each	_____	_____

1007	LOAD CELL CONNECTION TO DATA ACQUISITION SYSTEM	2	Each	_____	_____
1008	LOAD CELL MONITORING AND MAINTENANCE, CELL-MONTHS	4	Each	_____	_____
1009	PIEZOMETER TRANSDUCER	22	Each	_____	_____
1010	PIEZOMETER MONITORING AND MAINTENANCE, METER-MONTHS	198	Months	_____	_____
1011	RELATIVE BLOCK MOVEMENT DEVICED (RBMD)	1	Each	_____	_____
1012	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MAINTENANCE, DEVICE-MONTHS	144	Each	_____	_____
1013	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MONITORING	288	Each	_____	_____

1014	SAWCUT	0	Each	_____	_____
1015	SAWCUT MONITORING AND MAINTENANCE, SAWCUT-MONTHS	132	Each	_____	_____
1016	ALIGNMENT PIN MONITORING	144	Each	_____	_____
1017	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE ONE	12	Months	_____	_____
1018	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE TWO	9	Months	_____	_____
1019	DATA ACQUISITION SYSTEM INSTALLATION - PHASE TWO	1	Lump Sum	_____	_____
1020	WEEKLY REPORTS	10	Each	_____	_____
1021	MONTHLY REPORTS	12	Each	_____	_____

1022	SPECIAL REPORTS	4	Each	_____	_____
	TOTAL				_____

OPTION YEAR TWO – 1 OCTOBER 2004 – 30 SEPTEMBER 2005

2001	INCLINOMETER-CASING	244	Linear Foot	_____	_____
2002	INCLINOMETER-DOWN-HOLE CABLING, SUPPORT SYSTEM, ETC.	244	Linear Foot	_____	_____
2003	INCLINOMETER-SENSOR	6	Each	_____	_____
2004	INCLINOMETER SENSOR MONITORING AND MAINTENANCE, SENSOR-MONTHS	564	Each	_____	_____
2005	TILT METER	1	Each	_____	_____
2006	TILT METER MONITORING AND MAINTENANCE, METER-MONTHS	132	Each	_____	_____

2007	LOAD CELL CONNECTION TO DATA ACQUISITION SYSTEM	9	Each	_____	_____
2008	LOAD CELL MONITORING AND MAINTENANCE, CELL-MONTHS	80	Each	_____	_____
2009	PIEZOMETER TRANSDUCER	2	Each	_____	_____
2010	PIEZOMETER MONITORING AND MAINTENANCE, METER-MONTHS	288	Each	_____	_____
2011	RELATIVE BLOCK MOVEMENT DEVICE (RBMD)	1	Each	_____	_____
2012	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MAINTENANCE, DEVICE-MONTHS	144	Each	_____	_____
2013	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MONITORING	400	Each	_____	_____

2014	SAWCUT	1	Each	_____	_____
2015	SAWCUT MONITORING AND MAINTENANCE, SAWCUT-MONTHS	132	Each	_____	_____
2016	ALIGNMENT PIN MONITORING	144	Each	_____	_____
2017	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE ONE	12	Months	_____	_____
2018	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE TWO	12	Months	_____	_____
2019	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE THREE	9	Months	_____	_____
2020	DATA ACQUISITION SYSTEM INSTALLATION - PHASE THREE	1	Lump Sum	_____	_____

2021	WEEKLY REPORTS	15	Each	_____	_____
2022	MONTHLY REPORTS	12	Each	_____	_____
2023	SPECIAL REPORTS	10	Each	_____	_____
	TOTAL				_____

OPTION YEAR THREE – 1 OCTOBER 2005 – 30 SEPTEMBER 2006

3001	INCLINOMETER-CASING	3,416	Linear Foot	_____	_____
3002	INCLINOMETER-DOWN-HOLE CABLING, SUPPORT SYSTEM, ETC.	3,416	Linear Foot	_____	_____
3003	INCLINOMETER-SENSOR	30	Each	_____	_____
3004	INCLINOMETER SENSOR MONITORING AND MAINTENANCE, SENSOR-MONTHS	834	Each	_____	_____

3005	TILT METER	11	Each	_____	_____
3006	TILT MONITORING AND MAINTENANCE, METER-MONTHS	231	Each	_____	_____
3007	LOAD CELL CONNECTION TO DATA ACQUISITION SYSTEM	1	Each	_____	_____
3008	LOAD CELL MONITORING AND MAINTENANCE, CELL-MONTHS	99	Each	_____	_____
3009	PIEZOMETER TRANSDUCER	1	Each	_____	_____
3010	PIEZOMETER MONITORING AND MAINTENANCE, METER-MONTHS	288	Each	_____	_____
3011	RELATIVE BLOCK MOVEMENT DEVICE (RBMD)	11	Each	_____	_____

3012	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MAINTENANCE, DEVICE-MONTHS	261	Each	_____	_____
3013	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MONITORING	634	Each	_____	_____
3014	SAWCUT	12	Each	_____	_____
3015	SAWCUT MONITORING AND MAINTENANCE, SAWCUT-MONTHS	249	Each	_____	_____
3016	ALIGNMENT PIN MONITORING	144	Each	_____	_____
3017	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE ONE	12	Months	_____	_____
3018	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE TWO	12	Months	_____	_____

3019	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE THREE	12	Months	_____	_____
3020	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE FOUR	9	Months	_____	_____
3021	DATA ACQUISITION SYSTEM INSTALLATION - PHASE FOUR	1	Lump Sum	_____	_____
3022	WEEKLY REPORTS	15	Each	_____	_____
3023	MONTHLY REPORTS	12	Each	_____	_____
3024	SPECIAL REPORTS	10	Each	_____	_____
	TOTAL				_____

OPTION YEAR FOUR – 1 OCTOBER 2006 – 30 SEPTEMBER 2007

4001	INCLINOMETER-CASING	122	Linear Foot	_____	_____

4002	INCLINOMETER-DOWN-HOLE CABLING, SUPPORT SYSTEM, ETC.	3,516	Linear Foot	_____	_____
4003	INCLINOMETER-SENSOR	40	Each	_____	_____
4004	INCLINOMETER SENSOR MONITORING AND MAINTENANCE, SENSOR-MONTHS	1,284	Each	_____	_____
4005	TILT METER	5	Each	_____	_____
4006	TILT METER MONITORING AND MAINTENANCE, METER-MONTHS	333	Each	_____	_____
4007	LOAD CELL CONNECTION TO DATA ACQUISITION SYSTEM	8	Each	_____	_____
4008	LOAD CEDLL MONITORING AND MAINTENANCE, CELL-MONTHS	213	Each	_____	_____

4009	PIEZOMETER TRANSDUCER	9	Each	_____	_____
4010	PIEZOMETER MONITORING AND MAINTENANCE, METER-MONTHS	378	Each	_____	_____
4011	RELATIVE BLOCK MOVEMENT DEVICE (RBMD)	0	Each	_____	_____
4012	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MAINTENANCE, DEVICE-MONTHS	300	Each	_____	_____
4013	RELATIVE BLOCK MOVEMENT DEVICE (RBMD) MONITORING	500	Each	_____	_____
4014	SAWCUT	0	Each	_____	_____
4015	SAWCUT MONITORING AND MAINTENANCE, SAWCUT-MONTHS	240	Each	_____	_____

4016	ALIGNMENT PIN MONITORING	198	Each	_____	_____
4017	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE ONE	12	Months	_____	_____
4018	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE TWO	12	Months	_____	_____
4019	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE THREE	12	Months	_____	_____
4020	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE FOUR	12	Months	_____	_____
4021	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE FIVE	9	Months	_____	_____
4022	DATA ACQUISITION SYSTEM MAINTENANCE - PHASE SIX	3	Months	_____	_____

4023	DATA ACQUISITION SYSTEM INSTALLATION - PHASE FIVE	1	Lump Sum	_____	_____
4024	DATA ACQUISITION SYSTEM INSTALLATION - PHASE SIX	1	Lump Sum	_____	_____
4025	WEEKLY REPORTS	15	Each	_____	_____
4026	MONTHLY REPORTS	12	Each	_____	_____
4027	SPECIAL REPORTS	10	Each	_____	_____
	TOTAL				_____
	TOTAL FOR BASE AND FOUR OPTION YEARS				_____

DELIVERY ORDERS WILL BE ISSUED AS REQUIREMENT IS NEEDED AGAINST THE OPTION YEAR LINE ITEMS.

Section C - Descriptions and Specifications

SCOPE OF WORK

TECHNICAL PROVISIONS
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Exhibits are attached as a separate file.

TECHNICAL PROVISIONS
Section 1

General

TP-1.1 SCOPE OF WORK

The Instrumentation Contractor shall furnish all necessary management, supervision, inspection, personnel, materials, supplies, parts, tools, and equipment to perform the installation, maintenance and monitoring of instruments for the Kentucky Lock Addition Project as specified in this contract. The Contractor shall comply with all Terms, Conditions, General, Specific and Technical Provisions, Drawings, Attachments, Exhibits, etc., contained herein or incorporated by reference. Incorporation by reference shall include any and all mandatory provisions required by the Federal Acquisition Regulation (FAR) whether it is referenced or not referenced, current at time of award.

Estimated quantities and/or the work to be performed are described herein and shown on the Contract Drawings. These quantities are approximate and are provided only for the Contractor's information. They are not guaranteed and the actual quantities may be more or less than shown. Variation in these estimated quantities shall not be justification for modification of the contract or request for additional payment. The Contractor's work and responsibility shall include, but shall not be limited to: all planning, design, programming, administration and management necessary to assure that all services are conducted in accordance with the contract and all applicable laws, regulations, codes, or directives. The Contractor shall perform all related Contractor administrative services necessary to perform the work such as equipment and supply procurement, quality control, and maintenance of accurate and complete Contractor records and files as well as timely submission of required files and reports to the Government.

Installation of the instruments included in this Contract is expected to occur in six (6) distinct phases as listed in the table below and shown graphically in Contract Drawing No. 61N850-3.

Type of Instrument	Number of Instruments in each Installation Phase					
	Phase 1 Upstream Lock wall	Phase 2 Upstream Cofferdam	Phase 3 Upstream Anchors	Phase 4 Downstream Lock Wall	Phase 5 Downstream Cofferdam	Phase 6 Downstream Anchors
Inclinometers (# holes)	11	3		13	6	
Tiltmeters	11			13	5	
Piezometers		24			10	
Load Cells*			11			9
Alignment Pins		6			3	
Relative Block Movement Dev.	11			12		
Sawcuts	12			12		

* The load cells will be installed by others in accordance with the Instrumentation Contractor’s specifications and as according to SECTION 2 of these technical provisions.

Each of the six phases of instrument installation correspond to a particular phase of construction for the KY Lock Project. Based on the current, estimated construction schedule, it is anticipated that the installation of Phases 1 through 4 will each occur in the corresponding contract year for the first four (4) years of this Contract and that Phase 5 and 6 will occur in the fifth year of this Contract. However, since each phase of instrument installation is dependent upon a construction phase and since there are many factors that can affect the schedule of the project’s

construction, it is possible that the installation phases will not occur in the contract years presently anticipated. For this reason, the distribution of quantities by contract year in the Schedule of Prices in Section B does not exactly match the table above. The Schedule of Prices has been developed to ensure that bid prices will exist in various contract years for the instrument installations to accommodate variations in the construction schedule. It is the Government's intention to issue a Delivery Order for each phase of installation. Each delivery order will also include the maintenance and monitoring of the instruments to be installed in that delivery order and previously installed instruments over a certain timeframe within that contract year. Supplemental Delivery Orders may be necessary to ensure continual monitoring and maintenance of the instrumentation system.

The number, types, and locations of instruments to be installed, maintained, and monitored as described herein and shown on the Contract Drawings for Installation Phases 2 through 6 should be considered preliminary. Any changes to Installation Phases 2 through 6 will be documented in the Delivery Order issued for that phase. The Government does not expect to make wholesale changes. Only minor changes in quantities and instrument locations will be involved. Significant changes the Instrumentation Contractor could not reasonably anticipate, or for which there is no clear method of payment must be accomplished through modification to this Contract. There are no anticipated changes to Installation Phase 1 as described herein and it is the Government's intention to issue a Delivery Order for Installation Phase 1 concurrent with or within one (1) month after the award of this contract. Installation Phase 1 will also include the design, installation, and monitoring of a data acquisition system. This data acquisition system will be expanded as necessary by the Instrumentation Contractor to accommodate the incorporation of instruments in Installation Phases 2 through 6.

TP-1.2 DELIVERY ORDER SCHEDULES

The delivery order schedule for Installation Phase 1 will require the Instrumentation Contractor to have all the instruments installed and data collection efforts commencing within three (3) months of the issuance of the delivery order. Completion dates or periods for the installation of instruments in all other future delivery orders will be specified in the appropriate delivery order. Delivery order sequencing, by necessity, will correspond with lock construction sequencing, but the delivery orders will be scheduled in advance with discussions to be held between the Government and the Instrumentation Contractor to determine a reasonable performance period for each delivery order. All instruments included in a delivery order shall be installed and operational in a maximum of four months after the Notice to Proceed is issued for that delivery order.

TP-1.3 WORKING HOURS

There will not be any restrictions on working hours for this Contract. It is expected that the Instrumentation Contractor may have to provide manpower at unusual hours based on the performance of the Instrumentation System or based on the schedule of construction activities that could impact or rely on the Instrumentation System.

TP-1.4 PERMITS AND LICENSES

The Contractor shall obtain any licenses or permits required for the contract at his/her own expense. The Contractor shall comply with all current Federal, state, and local laws and regulations and shall comply with any subsequent changes.

TP-1.5 SAFETY AND SECURITY REQUIREMENTS

If the Instrumentation Contractor fails or refuses to promptly comply with safety and security requirements as specified herein, the Contracting Officer's Representative (COR) or designated representative may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stoppage shall be made subject to claim for extension of time or for excess costs or damages to the Instrumentation Contractor. Also, the Instrumentation Contractor will not be paid for work not performed as a result of the stop order. The Instrumentation Contractor shall comply with all current provisions of the Occupational Safety and Health Act (OSHA); the standards of the Corps of Engineers Manual, EM 385-1-1, and the Safety and Health Requirements Manual. The Instrumentation Contractor shall provide all safety equipment, which must

conform to standards, set by the American National Standards Institute (ANSI). The Instrumentation Contractor is required to comply with all interim changes to EM-385-1-1 which are posted in the Safety and Occupational Health Website prior to contract award. The webpage location where the interim changes are found is under the button entitled "Changes to EM", located at: **http://www.hq.usace.army.mil/soh/hqusace_soh.htm**

The Special Contract Requirement entitled ACCIDENT PREVENTION addresses the contract requirement for the submission of the Safety Plan and the Activity Hazard Analysis. Attached as a separate file is Exhibit A, ORNP-385-1-2 CONTRACTOR GUIDELINES, for the preparation of the Safety Plan and the Activity Hazard Analysis.

The Instrumentation Contractor will be furnished a set of keys to the buildings and gates. No duplicates of the keys are to be obtained in any manner by the Instrumentation Contractor or any Instrumentation Contractor employees. Any additional keys required by the Instrumentation Contractor will be furnished by the COR. Security of the keys issued shall be the responsibility of the Contractor. Failure of the Instrumentation Contractor to provide adequate key security will result in a deduction from the payment due the Instrumentation Contractor in the amount of $25.00 per lost or damaged key and a deduction for recombining any affected locks at the rate of $50.00 per lock plus the installation.

Security requirements shall include that contractors and sub-contractors wear photo I.D.'s. The I.D. shall include the individual's name and name of their company. It shall be worn and visible while the employee is on-site.

The Contractor shall report to the COR problems encountered in the course of his work such as theft, vandalism, safety hazards, erosion and facility malfunctions.

Prior to the start of work under this Contract, the Instrumentation Contractor shall provide the COR or designated representative with a Safety Plan. The plan must be approved by the COR or designated representative before work commences.

TP-1.6 SAFEGUARDING GOVERNMENT PROPERTY

The Instrumentation Contractor shall cooperate with Government personnel in safeguarding Government property. The Instrumentation Contractor shall establish security procedures and safeguards that are compatible with the Government's existing procedures to protect all equipment, materials, supplies, tools, and other resources.

TP-1.7 ACCIDENT REPORTING

The Instrumentation Contractor shall maintain an accurate record of and shall report to the COR or designated representative in the manner and on the forms prescribed by the COR, all accidents within 24 hours of the occurrence. All serious accidents (those resulting in death or injury requiring medical attention) shall be reported immediately.

TP-1.8 DAMAGE REPORTS

In all instances where Government property and/or equipment is damaged by the Instrumentation Contractor or his employees, a full report of the incident and extent of such damage shall be submitted to the COR within 2 work days (less weekends and holidays) of occurrence.

TP-1.9 DAMAGE OR LOSS OF CONTRACTOR'S SUPPLIES AND PROPERTY

The Instrumentation Contractor is responsible for taking the action necessary to protect all Instrumentation Contractor property and the personal property of Instrumentation Contractor employees from loss, damage or theft. The Government assumes no responsibility for theft, damage, etc., of the above. The Instrumentation Contractor shall restore or replace, at no cost to the Government, any items damaged or lost during storage, handling or

installation. The Instrumentation Contractor shall also maintain and protect all instruments and readout systems after installation and be responsible for immediate replacement of any item if damaged.

TP-1.10 CONTRACTOR EMPLOYEES

All Instrumentation Contractor employees shall conduct themselves in a proper manner at all times. The Instrumentation Contractor, subcontractors or their employees shall not consume alcoholic beverages or controlled substances while on duty. Nor shall they perform their duties while under the influence of said substances.

The Instrumentation Contractor shall remove from the site any individual whose continued employment is deemed by the COR or designated representative to be contrary to the public interest or inconsistent with the best interests of the U.S. Army Corps of Engineers (COE).

The COR or designated representative will require the Instrumentation Contractor to immediately remove from the work site any employee who is incompetent, or who endangers persons or property, or who's physical or mental condition is such that it would impair the employee's ability to satisfactorily perform the work. Notification to the Instrumentation Contractor will be made in writing if time and circumstances permit. Otherwise, notification will be verbal and shall be confirmed in writing as soon as possible. No such removal, however, will reduce the Instrumentation Contractor's obligation to perform all work required under this Contract and immediate replacement shall be made as required.

TP-1.11 SUPERVISION

The Instrumentation Contractor shall give his/her personal supervision to the work, or have a competent Foreman or Superintendent on the site at all times work is in progress with authority to act for the Contractor. Such authorization shall be submitted in writing to the COR. The COR shall conduct the overall management and be the central point of contact with the Government for performance of all work under this Contract. The Superintendent and any individual designated to act for him/her shall have full authority to contractually commit the Instrumentation Contractor for prompt action on matters pertaining to administration of this Contract. The Instrumentation Contractor or Superintendent shall deal directly with the COR or a designated representative, for normal day-to-day administration of the contract provisions. The Contractor or Superintendent shall notify the COR or designated representative upon arrival at the project and when ready to leave for the day.

The Instrumentation Contractor or the Superintendent shall contact the COR or a designated representative daily or as otherwise approved by the COR, to coordinate the work schedule in compliance with the terms of the contract and to arrange satisfactory working agreements. The Contractor shall furnish, in writing, to the COR, the name or names of Superintendent(s) for on-the-job contact and supervision purposes. The Contractor and Superintendent(s) will be required to attend pre-work conferences prior to commencing work under this contract.

TP-1.12 MINIMUM PERSONNEL REQUIREMENTS

The Instrumentation Contractor shall provide an adequate number of fully qualified personnel to perform the work specified herein and according to Section 2 INSTRUMENTATION.

TP-1.13 ENVIRONMENTAL PROGRAM

The Instrumentation Contractor shall comply with Federal, State, and local laws, regulations and standards regarding environmental protection. All environmental protection matters shall be coordinated with the COR. Any of the facilities operated by the Instrumentation Contractor may be inspected by the COR, designated representative or other Federal, State and local officials on a non-notice basis. Access for inspection shall be granted upon request. Citations against Government facilities operated by the Instrumentation Contractor for noncompliance with environmental standards are a matter for resolution between the Government and the issuing office. Payment of fines or penalty charges associated with citations issued through Federal, state or local officials shall be paid through

the Government. If the citations are issued due to faulty operation or maintenance practices, the COR shall deduct the fine from any monies due the Contractor or require the Contractor to pay the fine if said monies have been paid.

It is anticipated that concrete cutting and other activities by the Instrumentation Contractor will require the disposal of solid waste. Clean concrete with no embedded steel may be disposed of at the West Bank Disposal Area associated with this project. All other solid wastes shall be disposed of at suitable commercial landfills.

TP-1.14 QUALITY ASSURANCE

The Government will monitor the Contractor's performance in each functional area under this contract and reserves the right to use whatever additional surveillance procedures is deemed appropriate. The Instrumentation Contractor shall inform the COR or designated representative when jobs are complete and ready for inspection.

The Instrumentation Contractor, the superintendent, or both shall meet with the COR or designated representative weekly or as determined necessary by the COR or designated representative. Mutual effort will be made to resolve any and all problems identified. Written minutes of these meetings shall be prepared by the Instrumentation Contractor and are to be signed by the COR.

If the Contractor fails to perform according to the performance standards, a Notification of Contract Discrepancy will be issued through the COR. The Contractor shall explain, in writing, why performance was not satisfactory and how recurrence of the problem will be prevented in the future.

Should the Contractor fail to satisfactorily perform any routine service that is required on a regular basis or at a specific time, a discrepancy notice will be issued. Since the nature and the schedule of this type work does not afford an opportunity to re-perform the service, a deduction for work not performed will be made.

Deduction will be based on the Contractor’s bid schedule, or the Government’s cost to perform the work, or the Government’s cost to have another Contractor to perform the work.

TP-1.15 INTERRUPTIONS TO SYSTEMS

All the work that would necessitate an interruption of the use of the project or to the systems or otherwise disrupt the lock’s operation or other contractors’ work efforts shall be fully coordinated and approved in advance by the COR. Interruptions shall be kept to an absolute minimum.

TP-1.16 GOVERNMENT FURNISHED ITEMS (GFI)

a. General. The only Government Furnished Items included in this Contract are certain portions of Government owned facilities and electrical power to the instrumentation system. All Government furnished property is provided in an "as is" condition and shall be used only in connection with performance under this contract consistent with all Federal, Department of Defense, and Environmental Act Policies, standards, codes, or directives.

b. Lock Operations Building Basement. An area measuring 12’ x 7’ has been reserved for the Instrumentation Contractor’s use in the operations building basement as shown on Contract Drawing No. 61N852-9. A description and constraints on using this area is contained in SECTION 2 INSTRUMENTATION.

c. Trailer/storage area. An area of 1/4 acre or less will be provided to the Instrumentation Contractor within the project’s “Area 5” for parking a storage and/or office trailer. Area 5 is shown in Contract Drawing 61N850-2. It will be the Instrumentation Contractor’s responsibility to provide any utilities for any trailers or facilities that he chooses to locate within Area 5. The Instrumentation Contractor will coordinate with and receive the approval of the COR prior to bringing any trailers or storing any equipment or constructing any facilities within Area 5.
d. Electrical power. The Government will provide AC power to the Instrumentation System through “as-is” outlets at the existing lock. The Contract Drawings and Section TP-2 provide more information on these power

connections. The Government will not provide power to any facilities within Area 5 or for any other Contractor needs not a component of the Instrumentation System.

TP-1.17 CONTRACTOR FURNISHED ITEMS (CFI)

a. General. Except as described elsewhere in this Contract, the Instrumentation Contractor shall furnish all personnel, facilities, vehicles, equipment and operators, supplies, tools, materials and parts necessary to accomplish all required services. All Instrumentation Contractor furnished items shall meet all applicable Federal, Department of Defense, Department of the Army, State and local laws or regulations. Unless otherwise specified, when the Contractor provides services, the Contractor shall provide all the necessary "tools of the trade" to accomplish the work.

b. Quality. All Instrumentation Contractor-furnished supplies and materials used shall be **new**, including all instruments and all components of the data acquisition system. The items used shall be standard products of manufacturers regularly engaged in the production of such items. The products shall be formulated for the purpose used and cause no damage to the equipment or materials upon which they are used. All Instrumentation Contractor furnished items are subject to approval by the COR prior to being used. All equipment, vehicles, and tools shall be kept in good condition, appearance and repair.

TP-1.18 DAMAGE TO GOVERNMENT PROPERTY

The Instrumentation Contractor shall use reasonable care to avoid damaging buildings, equipment, and vegetation on the Government installation. If the Instrumentation Contractor's failure to use reasonable care causes damage to equipment or loss of property or generating capacity, the Instrumentation Contractor shall replace or repair the damage, at no cost to the Government, as the COR directs. If the Instrumentation Contractor fails or refuses to make such repairs or replacement, the Instrumentation Contractor shall be liable for the cost, which will be deducted from the contract price.

TP-1.19 OWNERSHIP OF INSTRUMENTATION SYSTEM

At the end of this Contract, on a date designated by the Contracting Officer, all instrumentation and the data acquisition system components shall be immediately turned over to become the property of the Government. The Instrumentation Contractor shall provide written certification that the entire system is in satisfactory working order prior to transfer of property to the Government. The Instrumentation Contractor will (shall) also provide the Government with at least one (1) fully calibrated measuring tool/device in good working order necessary to read all the instruments separate from the automatic data acquisition system, excluding the survey equipment necessary for measuring the alignment pins. This tool/device shall be kept within the Site Monitoring Station (SMS) for Government access at all times. All measuring tools/devices used by the Instrumentation Contractor shall be kept in good working order for the duration of the Contract.

TP-1.20 OTHER CONTRACTS

a. General. The Government will undertake or award other contracts performing certain work in the project area, and the Contractor shall fully cooperate with such other contractors and Government employees and carefully fit their own work to such other additional work as may be directed by the COR. The Instrumentation Contractor shall not commit or permit any act, which will interfere with the performance of work by another Contractor or by Government employees. The COR may alter the work schedules of another Contractor or Government employees or the Contractor to avoid possible conflicts. Any such change or failure to make such a change by the COR shall not be the basis for a claim by the Instrumentation Contractor. The known and anticipated construction contractors that will involve interaction with the Instrumentation Contractor are described in the following paragraphs.

b. Upstream Cofferdam Construction Contractor. This construction contract was awarded in September 2001 and has a scheduled completion date of January 2004. It is expected that significant coordination will be required between the Instrumentation Contractor and the Upstream Cofferdam Contractor during the latter phase of cofferdam

construction. This is because the Instrumentation Contractor may be installing instruments and data collection components within the cofferdam's work area prior to its completion.

c. Upstream Lock Excavation Construction Contractor. It is the Government's intention to award this construction contract by early fall of 2003 with an expected duration of about 1 year. The Upstream Lock Excavation Contractor's responsibility will primarily be to excavate the upstream end of the new lock as depicted in Contract Drawing No. 61N850-4. The Excavation Contractor will also be responsible for installing the rock anchors and associated load cells that are included in Installation Phase 3 of this Instrumentation Contract. Significant coordination is expected between the Excavation Contractor and the Instrumentation Contractor during load cell selection and installation, various excavation stages, and during rock blasting.

d. Lock Construction Contractor. It is the Government's intention to award this contract in the fall of 2004. This contractor will finish the construction of the new lock. Major components of this contract include construction of the upstream lock monoliths (including additional rock blasting and excavation), construction of the downstream cofferdam, excavation of the downstream lock, installation of the anchors and load cells for the downstream existing lock monoliths, and construction of the new downstream lock monoliths. Extensive coordination is expected between the Lock Contractor and the Instrumentation Contractor during the various phases of lock construction and installation of instruments.

TP-1.21 ACCESS TO THE PROJECT SITE

The Instrumentation Contractor is advised that personnel and equipment access to the project site will vary during the various phases of the new lock's construction. Contract Drawings No. 61N850-4 and 5 show the main phases of construction that will affect access to the existing lock wall during construction. Up until excavation begins for the downstream lock construction, it is anticipated that the Instrumentation Contract personnel can access the existing lock land wall via the east bank and park near the lock wall. Upon initiation of the downstream lock excavation, the Instrumentation Contract personnel will either have to access the existing land wall from the west by parking on the existing river wall and walking across a miter gate or from the east by walking across the upstream cofferdam or driving a small vehicle across the upstream cofferdam. The small vehicle could be no larger than a golf cart.

TP-1.22 SYSTEM RELIABILITY

If an instrument does not function properly for a cumulative total of 48 hours or more within any 30 consecutive calendar day period, the Instrumentation Contractor will not be paid according to SECTION 2 INSTRUMENTATION-Measurement and Paymentuntil repairs have been made and approved by the Contracting Officer.

The Instrumentation Contractor shall maintain a supply of replacement instruments on-site; the minimum supply shall be 10%, or a minimum of two, (whichever is greater) of each type of instrument scheduled for each installation phase.

TP-1.23 INCLEMENT WEATHER

The contractor shall maintain the schedule of services regardless of inclement weather. Exceptions can be approved through the COR when severe conditions make it impracticable or dangerous to perform the work.

TP-1.24 PAYMENT

The Contractor will be paid only for work accomplished and performed in accordance with these specifications. The Contractor shall submit two typewritten copies of an invoice to the COR no later than the fifth of each month. Services billed will be those provided for the previous calendar month.

TP-1.25 DEFINITIONS

As used throughout this description/specification, the following terms shall have the meaning set forth below:

a. Instrumentation Contractor or Contractor. The terms “Instrumentation Contractor” or “Contractor” refers to the prime Contractor and all contractor employees and personnel. The prime Contractor shall be responsible for ensuring all subcontractors comply with the provisions of this contract.

b. Contractor Representative. A foreman or superintendent assigned to represent the interests of the Contractor with regards to all matters involving this contract.

c. Contracting Officer. A person with authority to enter into or to administer to and/or to terminate contracts and make related determinations and findings.

d. Contracting Officer’s Representative (COR). An individual designated in writing by the Contracting Officer to be responsible for administration of the contract.

e. Construction Field Office (CF0). The COE office located on-site containing the project engineer.

f. Quality Control. A method used by the Contractor to control the quality of services provided.

g Office. Areas primarily for clerical or administrative functions and which usually contain desks, chairs, file cabinets, tables and other common office furnishings.

h. Site Monitoring Station (SMS). A station to be located in the basement of the existing lock operations building that will consist of a host computer and all associated hardware and software necessary to collect and report on the data generated from the instruments.

i. Instrumentation System. All instruments, hardware, and software included in this Contract, including all components of the data acquisition system.

j. Data Acquisition System. All components necessary to collect and process data from the instruments. This includes the SMS, all transmission and data collection equipment including data loggers, multiplexers, signal cables, and conduit.

k. Remote Monitoring Station (RMS). Stations located at the CFO, Nashville District (COE) office, and TVA office in Chattanooga, TN for liberal off-site data monitoring by COE and TVA personnel.

END OF SECTION

TECHNICAL PROVISIONS
Section 2
Instrumentation

TP-2.1 SCOPE

The work described in this section consists of furnishing, installing, maintaining, and monitoring the instrumentation system shown on the Contract Drawings as specified herein. The purpose of the instrumentation system is to obtain baseline data on movement of the existing landward lock wall before excavation and construction activities begin adjacent to the existing lock. The purpose is to also monitor the movement of the landward wall and cofferdams during all phases of the new lock construction project. The intent is to bring together all planned instrumentation from the existing landward lock wall and the upstream and downstream cofferdams into one data acquisition system. The instrumentation system generally consists of, but is not limited to, electronic sensors, signal cable, conduit, junction boxes, data collecting system, inclinometer casing, relative block movement devices (RBMD), alignment pins, saw cuts, and protective covers. The electronic sensors include in-place inclinometers, tiltmeters, load cells, and piezometer transducers. The data collecting system generally includes hardware, software, and other necessary items for data gathering, processing, and storage on real time (automated) or manual collection basis, as specified herein.

TP-2.2 REFERENCES

The following publication listed below, referred to hereafter by basic designation only, forms a part of this specification to the extent referenced:

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-1004	Deformation Monitoring and Control Surveying (31 October 1994)

U.S. ARMY CORPS OF ENGINEERS (USACE) SAFETY MANUAL

EM 385-1-1	Safety and Health Requirements (3 September 1996)

TP-2.3 CONTRACTOR RESPONSIBILITY

The Instrumentation Contractor shall be responsible for furnishing, pre-testing, and installing the instrumentation system except as noted herein or on the Contract Drawings. The Instrumentation Contractor shall demonstrate and certify that the instrumentation system is fully operational after each phase of the system is completely installed. The Instrumentation Contractor shall also be responsible for maintaining the instrumentation system in working order, and for system monitoring, including obtaining readings and reporting results in the formats specified, for the instruments installed throughout the duration of the Contract.

The Instrumentation Contractor shall be responsible for maintaining access to and protection of all installations from damage, freezing, lightning, displacement, or from entry of foreign materials into the installation over the full duration of the Contract. The Instrumentation Contractor is responsible for repairing all damaged equipment. Costs related to damage that could not have been avoided by the Instrumentation Contractor, and are a direct result of other contractors or by the Government, will be reimbursed by the Government. All equipment needed for observations in connection with the instrumentation sensors shall be supplied and maintained by the Instrumentation Contractor unless otherwise specified. If damage, improper installation, foreign materials or other causes resulting from negligence by the Instrumentation Contractor, or his representative, results in unreliable or inoperable instrumentation and monitoring equipment, that portion of damaged instrumentation shall be replaced or repaired. The Instrumentation Contractor shall also be responsible for all costs related to any property damaged at

the lock, both cofferdams, and any other Government owned or leased areas adjacent to the lock that are a result of Instrumentation Contractor's negligence or faulty work.

The Instrumentation Contractor is responsible for wastewater collection/disposal where applicable; dust control; waste cleanup/disposal; and maintaining all work required under this Contract. The Work environment shall be free from environmental pollution that would be in violation of any federal, state or local regulations. The Instrumentation Contractor shall employ best management practices to ensure waste material, petroleum products, or other polluting materials are contained and prevented from entering the waterways.

The Instrumentation Contractor shall also be responsible for all costs related to removal/replacement of unforeseen embedded steel within the concrete on the lock wall that may be encountered during trenching or other concrete removal work. Any costs encountered during trenching, or other concrete removal (and based upon the Government's approval) by the Instrumentation Contractor shall be the responsibility of the Instrumentation Contractor.

All automated instrumentation shall be installed and tested by the Instrumentation Contractor in the presence of the Contracting Officer's designated representative. Complete installation of any instrument shall not be carried out until it has been approved by the Contracting Officer or his representative. The Instrumentation Coordinator shall make functional checks and/or calibration tests on the automated instrumentation. If the instrumentation sensors or any other component of the system they connect to prove to be unsatisfactory to the Contracting Officer, the defective equipment shall be replaced in kind at the Instrumentation Contractor's expense.

As part of this Contract, the Instrumentation Contractor shall replace any handrail mesh sections cut during the performance of his work. The replacement method shall be approved by the Contracting Officer prior to close of Contract.

TP-2.4 CONTRACT DRAWINGS

The Contract Drawings indicate an approximate view of where instruments are to be located. A list of Contract Drawings is included as Exhibit B. These Contract Drawings, including any revisions, may be re-issued for the issuance of a delivery order. The Instrumentation Contractor is responsible for devising an Instrumentation Work Plan, as described below, that shows the exact location for installing all components of the instrumentation system (sensors, data logging equipment, etc.). The Instrumentation Contractor is responsible for ensuring instruments are located at the locations as shown on the drawings submitted with that work plan and approved by the Contracting Officer. Any changes to locations proposed by the Instrumentation Contractor and approved by the Contracting Officer after that point shall be at no additional cost to the Government.

TP-2.5 SUBMITTALS

Government Approval (GA) is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Technical Provisions SECTION 3 SUBMITTAL PROCEDURES.

(a) Instrumentation Work Plan; GA.

Prior to the purchasing of any materials or beginning any installation for each of the six phases, the Instrumentation Contractor shall submit for approval of the Contracting Officer drawings and documents which completely describe the proposed instrumentation, detailed locations for installing all components of the instrumentation system, a detailed Gantt chart illustrating the Instrumentation Contractor's overall work schedule to comply with the applicable phase of this Contract, and the proposed methods for: installation of all components of the instrumentation system; protection and maintenance of new instruments; instrumentation observations; automatic data reduction; and, data reporting. The Instrumentation Work Plan drawings and documents shall include shop drawings of the instrumentation, reading equipment (e.g., field data transmission methodology) manufacturer's

catalog data, operator's installation instructions, and a description of handling and storage methods. Instruments, major instrument parts, accessories, associated parts and materials shall be identified, as applicable, by stock numbers, standard nomenclature, performance rating and in conformance with technical standards. Prior to instrumentation installation, the Instrumentation Contractor shall consolidate these drawings and documents into manual form and submit five (5) copies to the Contracting Officer or his authorized representative. Any additions, deletions, or deviations from these specifications, schedule, manufacturer's procedures, equipment, or materials shall be identified, approved by the Contracting Officer or his authorized representative, and described in writing in the above documentation.

(b) Instrumentation Coordinator and Manufacturer's Representative; GA

The Instrumentation Contractor shall retain the services of qualified personnel and organizations to perform all aspects of the required instrumentation. Within 10 days of the date of Contract award, the Instrumentation Contractor shall submit to the Contracting Officer or his authorized representative the names of the organizations it intends to use for this operation and the names and qualifications of the technical personnel that will be installing, maintaining, and monitoring the instrumentation according to this Contract. At the same time, the Instrumentation Contractor shall submit the name and qualifications of the Instrumentation Coordinator who will be responsible for the overall coordination of the instrumentation program, including the collection and reporting of data. During the course of the project, the Instrumentation Coordinator shall be replaced only after submitting the name of the replacement 30 days prior the exchange, and only with the prior approval of the Contracting Officer. The Instrumentation Contractor shall submit to the Contracting Officer within five (5) days of beginning any data collection, under each respective phase of the Contract, a certificate from the Instrumentation Coordinator that states the instrumentation work was performed in conformance with these Drawings and Specifications for each individual phase of work. This shall also include that the system and all components are operating properly and that the data is accurate and reliable.

(c) Plan for Periodic System Reliability Check; GA

Separate from the initial verification of the instrumentation system's performance and onset of data collection, the Instrumentation Contractor shall provide evidence during random site visits and walk-downs made by the Contracting Officer or his representative that the data acquisition system and instruments are functioning as specified. The Instrumentation Contractor shall design a plan to prove how the system reliability, as specified herein, will be monitored and met. This plan must be approved by the Contracting Officer prior to installation of any instrumentation. The Instrumentation Contractor shall also be able to prove this reliability through visual performance testing in front of the Contracting Officer or his representative during random site visits and walk-downs throughout the duration of this Contract. Also at these site visits, Instrumentation Contractor shall prove reliability of the alarm system as described herein.

(d) As-Built Plan & Reports; FIO

An as-built report, for each phase of installation, shall be submitted in five (5) copies to the Contracting Officer upon completion of instrumentation installation and immediately after installation approval given by the Contracting Officer or government representative. The report shall be detailed and describe all work to date, include photos, contain all date(s) of equipment installed, and contain detailed as-built drawings as specified in Technical Provisions Section 5 AS-BUILT DRAWINGS. Also, manuals and calibration sheets, and a log for correlation of Manufacturer's model and serial numbers to instrument location numbers shall be included in the report. An updated schedule shall be submitted at the same time of this report that is cumulative to date and shows any modifications to original schedules submitted to and approved by the Contracting Officer. The Instrumentation Contractor shall maintain and submit as-built plans to the Contracting Officer in Microstation ".dgn" format. The as-built plan(s) shall be approved by the Instrumentation Coordinator for the accuracy of data presented on the plan. The as-built plan shall include, as a minimum: the actual location of each instrument installed, the actual elevation of each sensor, and the location of each instrumentation conduit (if applicable). Drawings shall also show lock features, signal cable connections and cable routing to data collecting devices.

(e) Operation and Maintenance Reports; FIO.

After each phase of installation is complete and the instrumentation and data collecting system is put into operation, an operation and maintenance manual shall be submitted to the Contracting Officer. This detailed operation and maintenance manual shall include all detailed operating instructions, a trouble-shooting guide, schematics of all components of the system, as-built drawings, parts list, addresses of vendors supplying parts to the system, and an inventory of spare parts to be located on-site.

Also, an operation and maintenance report shall be submitted to the Contracting Officer each calendar month for the duration of the Contract. This report shall document all operation and maintenance activities, including malfunctions, damages, replacements, etc. The reports shall be cumulative to include all records to date.

(f) Instrumentation Data and Plot Report; FIO.

Instrumentation readings shall be submitted in report format as specified herein. Submissions are required on a weekly or monthly basis as directed by the COR with five (5) hardcopies required for each report. Each hardcopy shall be accompanied with a copy of the report and plots on Compact Disc (CD). All plotted data shall be generated in Microsoft Excel 2000 compatible with Microsoft Windows 2000 and Windows XP operating environments. The Instrumentation Contractor is also responsible for upgrading to future releases of Windows operating environments upon the request of the Contracting Officer. The content of the reports shall be as specified in this section. The data and cumulative plot reports shall be submitted to the Contracting Officer on a more frequent basis if requested by Contracting Officer. Such submission shall be via electronic format (fax or electronic mail).

(g) Final Report; FIO.

A final report shall be submitted to the Contracting Officer at the completion of the Contract. This report shall include an inventory of all equipment and spare parts; the complete, updated as-built drawings and reports; an updated Instrumentation Operations and Maintenance Manual and the final Operation and Maintenance Report; time history plots of all instruments, and a final comprehensive Instrumentation Data and Plot Report. Five hardcopies of the report and a duplicate copy on CD shall be submitted.

TP-2.6 QUALIFICATIONS OF INSTRUMENTATION PROGRAM PERSONNEL

(a) Instrumentation Coordinator

The minimum qualifications for the position of Instrumentation Coordinator shall be as follows:

A Bachelor of Science degree in Engineering (or Engineering Geology) from a university with an accredited engineering (or Engineering Geology) curriculum, and three (3) years of extensive experience in installing and reading monitoring instruments for Geotechnical Engineering purposes; or a degree or certificate of satisfactory completion of a two-year course in Civil Engineering Technology from an accredited Technical Institute or College, and five (5) years of extensive experience in installing, maintaining, and reading monitoring instruments for Geotechnical Engineering purposes. At least two (2) years of that experience must be related to the types of instrumentation in this Contract.

The Instrumentation Coordinator shall be responsible for supervising and directing installation of all instrumentation. The Instrumentation Coordinator shall monitor and read all instrumentation until the last phase of the instrumentation system is completely installed and is accepted by the Contracting Officer.

(b) Electronics Technician

The minimum qualifications for the position of Electronics Technician shall be as follows:

A degree or certificate of satisfactory completion of a two-year course in electronics from an accredited technical institute. The Electronics Technician shall also have at least five (5) years of experience with diagnosing data collecting equipment and writing programs for operation of the data acquisition system selected for design. At least two (2) years of that experience must be related to the types of instrumentation in this Contract.

The Electronics Technician shall be responsible for installing the data acquisition system and grounding system; conducting final inspection of instruments, lead wires, cabling, splices and junctions; conducting diagnostics of the data acquisition and communication system; and verifying the proper operation of the data acquisition system in terms of accuracy of data values, threshold limits, logging frequency, identification numbers of instruments being recorded, and software operation.

(c) Installation Personnel

The instruments shall be installed by experienced technical personnel. The Contracting Officer or his authorized representative has the authority to reject any organization or individuals that he deems unsatisfactory. Technical personnel responsible for installing the instruments shall ensure that each instrument is properly installed and fully operational before leaving the site. Readings of the instruments, as required by the specifications, must be obtained by personnel experienced in this type of work. If it is discovered that readings are not being taken correctly, the Contracting Officer or his authorized representative has the authority to direct changes in the reading procedures.

(d) Professional Surveyor

The Contractor shall provide a registered Professional Surveyor or Licensed Engineer to determine as-built locations for instrumentation installed, and obtain measurements as specified herein of all cofferdam alignment pins for instrumentation monitoring, and reporting.

(e) Manufacturer's Representative

The Contractor shall provide a qualified representative of the electronic instrumentation manufacturer to instruct the Instrumentation Coordinator, Electronics Technician, Installation Personnel, and the Government's designated representative(s). The Contractor shall retain the Manufacturer's Representative for pre-installation instruction, instrument calibration, pre-installation testing and post-installation integrity testing of the automated instrumentation sensors. The Manufacturer's Representative shall be on-site to personally witness pre-installation testing and to train and assist the Instrumentation Coordinator on-site. Prior to startup of the automated data collection, at least one (1) representative from the manufacturer of the data collecting devices shall operate the data acquisition system for a minimum of two (2) consecutive 8-hour days.

TP-2.7 CONTRACTOR QUALITY CONTROL

The Contractor's Quality Control system shall conform to Technical Provisions SECTION 4 CONTRACTOR QUALITY CONTROL.

TP-2.8 TRAINING OF GOVERNMENT REPRESENTATIVES

Prior to closeout of the contract, the Instrumentation Contractor shall provide formal on-site training sessions to two persons designated by the Contracting Officer. Training shall discuss the operation and maintenance of the system after it is installed and fully operational.

TP-2.9 INSTRUMENTATION DEVICES

Where materials or equipment required to complete the instrument installation are not specifically addressed or covered by these specifications, the Instrumentation Contractor shall furnish high-quality commercial grades of materials approved by the Contracting Officer. Selected electronic devices shall be designed to minimize interference from radio signals, electrical equipment, lightning strikes, and rock excavation blasting. As a general rule, any vibrating wire type of sensor shall be capable of measuring temperature for the environment the sensor is installed in.

(a) In-place Inclinometers

1. Inclinometer Casing

Prior to issuing the Notice to Proceed (NTP) for each phase of instrumentation installation, holes for inclinometer casings for the inclinometer sensors will be pre-drilled by others. The diameter and approximate location of each hole are shown on the Contract Drawings. The Instrumentation Contractor is responsible for supplying the casing assemblies for the pre-drilled vertical holes on the existing lock wall, and shall furnish a watertight metal cover (capacity 100 psi) over each inclinometer recess. Cofferdam inclinometer casings will be furnished by the cofferdam contractors, who are also responsible for the pre-drilling of the cofferdam inclinometer holes. However, the Instrumentation Contractor is to select and specify the type of inclinometer casing for each cofferdam.

The inclinometer casing, couplings, and other components shall be compatible with the inclinometer sensor selected. The casing and couplings shall be made of corrosion resistant material. Grooves shall be high precision with less than 0.3 degrees of spiral per 10-foot length, and deep enough to prevent wheel assemblies from jumping out of the grooves. Couplings shall be water and grout tight, and self-aligning with positive connections to provide precise groove alignment and prevent slippage at joints.

2. Inclinometer Sensors

Instrumentation Contractor shall furnish vertical in-place inclinometers designed to measure lateral movement of rock and man-made structures in two orthogonal directions (biaxial) through a continuously monitored automated data acquisition system. Sensors shall be located at the elevations specified on the Contract Drawings for each hole. The inclinometers shall be fully compatible with the data acquisition system.

The installed sensors shall be capable of accurately monitoring movement perpendicular to the existing lock wall or the cofferdams at each instrument location. The grooves in the inclinometer casing shall be oriented parallel and perpendicular to the principle axis of the lock or cofferdam.

Standard range for each sensor in its principle direction shall be $\pm 10°$ with sensitivity/repeatability for each sensor at ± 10 arc seconds (0.0006 in/ft). Sensor housings shall be corrosion resistant and watertight. All

appurtenances, including but not limited to down-hole cabling, rods, tubing, joints, brackets and wheel assemblies, required to complete the installation of each inclinometer location shall be obtained from the same manufacturer and shall be compatible with the selected sensors.

(b) Tiltmeters

Tiltmeters shall be in-place, electrolytic, biaxial sensors contained in corrosion resistant, weatherproof housings, and shall be located as shown on the Contract Drawings. The angular range for each tiltmeter sensor shall be $\pm$0.46° with sensitivity/repeatability for each sensor at $\pm$1 microradian. The tiltmeters shall be capable of measuring temperature. The tiltmeters shall be connected to and fully compatible with the data collecting system, but shall also have the capability to be read manually. The Instrumentation Contractor shall furnish a supplier's certificate to certify that each tiltmeter is correctly operating before acceptance by the Government. The Instrumentation Contractor shall provide and install a protective cover over each tiltmeter. The tiltmeter and protective cover shall be secured to the concrete surface. Any tiltmeters that are recessed do not have to contain a protective cover but must be contained under a watertight flush-mounted manhole cover as shown on the Contract Drawings.

(c) Load Cells

The Lock Anchor Construction Contractor will furnish and install center-hole load cells to monitor applied rock-anchor loads at locations shown on the Contract Drawings. However, the Instrumentation Contractor is to select and specify the type of load cells to ensure their compatibility to the data acquisition system. The load cells shall consist of either vibrating-wire sensors or electrical-resistance strain gauges. Each load cell shall be equipped with a minimum of six (6) strain gauges located on the perimeter, and the individual readings shall be averaged to minimize the effect of uneven and eccentric loading. The load cells shall have an inside diameter large enough to accommodate the anchor strands; this diameter is estimated to be about 10 inches. The load cells shall have a rated capacity of 1,000 tons, and shall have a sensitivity of 0.01 percent. The Instrumentation Contractor shall provide all instruments and equipment necessary to read the cells manually with a portable unit as well as to connect the load cells to the data acquisition system.

(d) Piezometer Transducers

The Instrumentation Contractor shall furnish corrosion-resistant transducers capable of monitoring cofferdam piezometric levels within the standpipe piezometers shown on the Contract Drawings. The transducers shall have a pressure range of 0 to 100 psi, with an accuracy of +/- 0.1% of full scale. Transducers shall be compatible with the automated data acquisition system, but shall also have the capability to be read by portable equipment at each instrument. The standpipe piezometer riser pipes will be furnished and installed by the respective cofferdam contractors. The existing piezometers on the lock wall are not included in this instrumentation program.

(e) Relative Block Movement Devices (RBMDs)

The Relative Block Movement Devices and protective covers shall be fabricated and installed by the Instrumentation Contractor as shown on the Contract Drawings.

(f) Sawcuts

The Instrumentation Contractor shall construct saw cuts within the concrete on top of the lock wall surface as shown on the Contract Drawings.

(g) Cofferdam Alignment Pins

Alignment pins will be furnished and installed by the cofferdam contractors. The Instrumentation Contractor shall furnish and install independent reference points to use as control for surveying these alignment pins as specified herein.

TP-2.10 INSTALLATION OF INSTRUMENTATION DEVICES

All instrumentation shall be examined visually for damage and defects, and installed in accordance with the approved work plan and the Manufacturer's recommendations. Installation shall be performed in phases as ordered by the Contracting Officer. To allow for temperature stabilization, the Instrumentation Contractor shall maintain each instrument in-place at a constant temperature for a minimum of 24 hours prior to taking any readings. In accordance with the approved work plan, installation controls shall be implemented and sensor cables shall be properly marked. An in-situ calibration check, consisting of four (4) consecutive readings, shall be taken immediately prior to installation in the presence of the Government Representative. This check shall take the form of introducing a known deflection or tilt (as appropriate) to the tiltmeters, or load on each load cell, while observing the data output. Recommended calibration procedures for inclinometer sensors and piezometer transducers shall follow the respective Manufacturer's specifications. Once the installation is complete, the Instrumentation Contractor shall take at least four (4) consecutive sets of readings within 24 hours to demonstrate the sensors are operating correctly and that potential mechanical 'settling' has taken place. The sensors shall only be deemed acceptable once all of the appropriate procedures have taken place, installation complies with each respective Manufacturer's specifications, and demonstrated data stability has been achieved.

All signal cables shall be marked with an instrument location identification number and type of instrument being connected to any data collecting device(s) so as to distinguish between each sensor cable. The identifying mark shall be permanent in nature and shall be located near the entrance of the cable into the data collecting device, junction boxes, pull boxes, and splices. In the case of each inclinometer sensor per casing, wiring for each sensor shall be individually identified.

All instrument locations shall have a label furnished and installed by the Instrumentation Contractor that identifies the instrument. The identification for each instrument shall be the same name/number provided in the Contract Drawings unless an alternative is approved by the COR. The label shall be permanent in nature and shall be located on or immediately adjacent to the instrument location.

The Instrumentation Contractor shall comply with the COE Safety Manual to abide by all regulations governing work to be performed. All work outside of handrail on the lock wall shall comply with safety standards as specified within that manual.

(a) Inclinometers

1. Inclinometer Casing

All inclinometer casings shall be installed as indicated on the Contract Drawings and in accordance with the respective manufacturer's recommendations. The respective cofferdam contractors will furnish and install the inclinometer casings shown for both cofferdams. The Instrumentation Contractor shall specify the type of casing assemblies to be installed, and shall be present during the installations to insure that the work is performed satisfactorily. If these casings are not being installed satisfactorily, the Instrumentation Contractor shall notify the Contracting Officer immediately. On the existing lock wall, the Instrumentation Contractor shall furnish and install the inclinometer casing assemblies, at the locations shown, in the holes pre-drilled by others.

The top of the casing and cabling assemblies shall be recessed below the top of the existing lock wall. The inclinometer casings installed on the lock wall shall be placed in a clean hole thoroughly flushed of all rock fragments and sediment. Instrumentation Contractor shall be responsible for cleaning out the holes prior to installation of the inclinometer casing and after any concrete cutting procedures. Concrete cutting for

enlarging the recess or cable trenches must have prior Contracting Officer approval. The annular space between the wall of the boring and the inclinometer casing may be filled with a cement grout tremied through a small-diameter plastic pipe; or the annular space may be grouted with a grout valve attached to the bottom section of the casing. Sections of casing shall be tightly sealed, according to manufacturer's specifications, to prevent any entry of grout used as backfill. The Instrumentation Contractor shall not hold the casing down at the top surface of the casing, since this can cause the casing to "cork-screw" within the borehole. A steel pipe can be lowered inside the casing to rest on the bottom cap to resist the buoyant force of the grout. Collapsing of the casing should be avoided during any grouting procedures. A spiral survey of the inclinometer casing on the lockwall shall be performed by the Instrumentation Contractor after casing is grouted and prior to installation of the inclinometer sensors within each hole. Each respective cofferdam contractor will perform the spiral survey on the cofferdam inclinometer casings according to Manufacturer's (as well as Instrumentation Contractor's) recommendations and will supply the Instrumentation Contractor that survey information required for applying to the measurements obtained during routine monitoring of the inclinometer sensors. Displacement or damage of the casing, or misalignment of the grooves, will require the Instrumentation Contractor to ream the hole and reinstall the casing at no expense to the Government. The Instrumentation Contractor shall install a watertight metal cover over each inclinometer recess; the covers shall be flush with the top of the lock wall.

2. Inclinometer Sensors

The Instrumentation Contractor shall furnish and install the in-place inclinometer sensor assemblies in the existing lock wall and both cofferdams at the locations and elevations shown on the Contract Drawings. Prior to installation of sensor assemblies into the inclinometer casing, the casing shall be inspected for debris and confirmation of proper groove alignment. Suspension or support brackets, cables, rods, tubing, wheel assemblies and other appurtenances shall be installed with the sensors in accordance with the Manufacturer's specifications in order to insure proper alignment and operability in order to monitor deflection or displacement perpendicular and parallel to the lock wall or cofferdam at the specified elevations.

(b) Tiltmeters

The Instrumentation Contractor shall furnish and install the tiltmeters at the locations indicated on the Contract Drawings. Tiltmeters shall be installed so as to monitor for $\pm$0.46° of tilt in either direction perpendicular and parallel to the lock wall or cofferdam.

Lock wall tiltmeters shall be accessed for manual readings by cutting a hole in the existing lock wall handrail mesh, where necessary. Instrumentation Contractor shall include the cutting method, location and size of each hole in the Instrumentation Work Plan for the Contracting Officer's approval prior to performing the work. The Instrumentation Work Plan shall also include the desired dimensions for the tiltmeter recesses in the downstream cofferdam.

(c) Load Cells

One (1) load cell will be installed by the lock anchor construction contractor on each unbonded anchor at the locations shown on the drawings. A center-hole load cell will be installed between the bearing plate and the anchor head of each anchor to be monitored. Bearing plates will be furnished and placed by the anchor contractor on each end of the load cell. If a load cell becomes inoperative or damaged due to the Instrumentation Contractor's negligence, the cell shall be replaced at the Instrumentation Contractor's expense.

(d) Cofferdam Piezometers

The Instrumentation Contractor shall furnish and install transducers, at the elevations specified, in the cofferdam standpipe piezometers installed by the cofferdam contractors. Installation shall be performed per Manufacturer's specifications for the type of transducers selected. Instrumentation Contractor shall furnish and install all cabling and equipment necessary to connect the piezometers to the automatic data acquisition system at the Site Monitoring Station (SMS). The piezometers shall be set up in such a manner that readings can be taken manually with a portable unit as well as with the automatic recording equipment at the SMS. All equipment, other than riser tubes and associated equipment used to install the standpipes, needed for observations in connection with the piezometers shall be supplied and maintained by the Instrumentation Contractor.

(e) Relative Block Movement Devices (RBMDs)

Each RBMD shall be installed as noted on the Contract Drawings and as follows:

1. Each RBMD shall span one monolith joint and shall be placed to allow a minimal 1/8-inch, but desirable 1/4-inch, sized gap between the individual pieces of the RBMD for adequate movement monitoring purposes.

2. Any deviations from these directions will require Contracting Officer's approval prior to installation.

Contract Drawings show a typical detail of the lock wall handrail and mesh. Where necessary, a cut shall be made in the existing handrail mesh to allow access for removal of the RBMD cover and to obtain the readings on an RBMD located outside the handrail. Instrumentation Contractor shall include the cutting method, location and size of each hole in the Instrumentation Work Plan for the Contracting Officer's approval prior to performing the work.

(f) Saw cuts

Instrumentation Contractor shall select a concrete saw that leaves a kerf conforming to the dimensions shown on the Contract Drawings. All cuts shall be made by a single pass of the saw spanning evenly across each monolith joint. The cut shall be straight, perpendicular to the joint, and made as clean as possible.

(g) Alignment Pins

The Instrumentation Contractor shall monitor horizontal and vertical movement of the cofferdams by surveying the alignment pins installed by the cofferdam contractors. These structural deformation surveys shall be performed using general procedures and precision for Second Order Class II surveys as specified in U.S. Army Corps of Engineers (USACE) Engineering Manual 1110-1-1004, Deformation Monitoring and Control Surveying, dated October 31, 1994. This manual is available at the following website: www.usace.army.mil/inet/usace-docs/eng-manuals/em1110-1-1004/toc.htm

TP-2.11 DATA ACQUISITION AND REPORTING SYSTEM

(a) Scope

The Instrumentation Contractor shall design, furnish, install and make fully operational a data acquisition and reporting system (also known as data collection system) for all of the site instrumentation. The data collection system shall include hardware, software, accessories, and services to make the system complete and fully operational, including necessary items not expressly indicated in these specifications. The system shall have the capability of both automatic data collection and manual data entry/display. It shall consist of a host computer with a

minimum of three (3) Remote Monitoring Station (RMS) units. The host computer shall be located at the Site Monitoring Station (SMS) as shown on the Contract Drawings. The host computer shall be capable of directly controlling the functioning of any and all data logging devices. The remote units will be existing Government-owned computers that are to be equipped with software capable ofcommunicating with a database as specified in paragraph TP-2.11 (c)-12 of these technical provisions. Remote stations will be located at the COE's Construction Field Office (CFO), and one unit each at the Nashville District COE office and the Tennessee Valley Authority (TVA) office in Chattanooga, TN. Remote access to the database shall be via either modem or Internet web page communication.

The host computer must operate under the industry standard Windows 2000/and Windows XP, IBM PC compatible operating environment. It shall be the responsibility of the Instrumentation Contractor to allow for and provide future upgrades to Windows environments and compatibility issues that may arise. Software for host computer, supplied by the Instrumentation Contractor, shall provide for programming of any data logging devices, communication, operator interface, data collection and management, storage, search, retrieval, sorting, printing, plotting and reporting. The system shall be programmable.

(b) Capabilities

The system shall be capable of:

1. Monitoring on a real-time basis all automated instrumentation, including inclinometer sensors, tiltmeters, piezometer sensors, and load cells; and shall be capable of manual data entry and printing;

2. Incorporating the existing Programmable Logic Control (PLC) water level monitoring of the headwater, tailwater, and chamber pool elevations currently in use at the lock. The Instrumentation Contractor's data acquisition system shall use this system as reference for time stamping water level elevations for the lock chamber, headwater, and tailwater whenever an automated instrument sensor is read;

3. Reading and storing data autonomously at preset time scanning intervals;

4. Readily allowing changes to reading frequencies based upon the type and location construction activity. Other times will be necessary and determined by the Contracting Officer based upon findings from the baseline data;

5. Autonomous data scanning for threshold exceedance. This is to be accomplished by continuously obtaining readings on instrument sensors once (1) every 60 seconds and comparing results with two threshold level values (incremental and cumulative). System shall only trigger an alarm if threshold value is exceeded. Any time an autonomously obtained value does not exceed the threshold, the reading is immediately ignored and is excluded from all historical data and reporting requirements as specified herein. This autonomous scanning is not to override nor neglect the scheduled data collection and reporting requirements as specified herein;

6. Allowing the operator to adjust initial threshold exceedance values as data is accrued and evaluated. The Contracting Officer or his representatives will assign these threshold exceedance values at a later date based upon findings obtained from baseline data, and may adjust values as the construction progresses;

7. Triggering an alarm message to 12 distinct telephone and 12 distinct electronic mail (email) destinations whenever threshold exceedance values are detected within the system as outlined above and as otherwise specified herein;

8. Managing data to filter any and all obviously erroneous data or potential noise, control reduction of data, and allow user to specify which frequencies and values to exclude from reporting and plotting requirements if at any time more erroneous data is suspected.

The Instrumentation Contractor is solely responsible for ensuring that the selected data logging system is fully integrated to operate with all the instruments installed on the existing lock wall; upstream and downstream cofferdams; and with the existing headwater, tailwater, and lock chamber pool elevation recording system (PLC system) mentioned above.

(c) System Components

1. Signal Cable

Signal cable shall be compatible with the instruments and data acquisition system. All signal cable shall be shielded and waterproof. Splices on signal cables shall be kept to a minimum, be waterproof, and installed in accordance with all appropriate Manufacturer's recommendations.

2. Instrumentation Conduit

a. Conduit Installation and Trenching

If a hardwired system is selected for data collection, containment for sensor cables shall consist of conduit furnished and placed at locations recommended on the Contract Drawings. Any alternate conduit routing proposed by the Instrumentation Contractor will require the Contracting Officer's approval. The primary purpose of the conduit is to protect sensor cable(s) from exposure to weather and minor, inadvertent mechanical damage. All conduit shall be surface mounted except for sections where trenching is required to prevent interference with lock operations. Size of trench for placing conduit is to be designed by Instrumentation Contractor and based on size of conduit selected to accommodate all cable sensors with a minimum of three (3) inches of replacement concrete as cover over the conduit. Replacement concrete within the trenches shall be non-shrink, have a smooth finish and be flush with top of lock wall surface. Conduit may be steel or PVC.

b. Load Cell Conduit

The conduit and wiring diagram for all load cell installation shall be placed as recommended on the Contract Drawings. Conduit for load cells shall be securely fastened to the lock wall when not buried in a trench (where recommended as shown on Contract Drawings).

3. Data Collection Equipment

Instrumentation Contractor shall furnish and install an adequate number of data collecting devices. The Data Collection Equipment shall include any data logging devices, multiplexer array (s), surge and lightning protection, and backup power supply (if different from the Government provided 120 volt outlets at locations specified on the Contract Drawings) necessary to ensure system reliability. Instrumentation Contractor is responsible for ensuring system is grounded and protected from lightning and any power surges that may occur. Instrumentation Contractor shall be responsible for performing any maintenance repairs that are a result of lightning or other induced interference. The Data Collection Equipment shall be enclosed and capable of operating at temperatures for the maximum temperature variations expected for

each application at the lock or cofferdam. All Data Collection Equipment enclosures shall be watertight, dust tight, and shall be secured under lock and key at all times.

a. Data Logging Devices

Each automated instrument sensor on the lock and both cofferdams shall be connected to centralized data logging devices for relaying the sensor data to the SMS. Data collecting devices shall be equipped with all vital components necessary to collect and transmit data from all automatic reading instruments in this Contract to the SMS. Lightning and transient protection shall be included to protect these devices and connected instruments from potential electrical surges. Data logging devices shall contain all hardware necessary for reading each instrument sequentially. A control module shall provide sensor measurement, communication, data reduction, data and program storage, and control functions. RAM storage modules shall be sized large enough to store data between data retrieval from the SMS. Each data logging device shall be capable of allowing the SMS operator to select the number, order and frequency of instruments to be read; set time interval(s) between automatic readings; and transfer selected stored data. Instrumentation Contractor is responsible for ensuring an adequate number of data logging devices are supplied to accommodate both upstream and downstream cofferdam instrumentation requirements under this Contract.

All hardwiring from outside the lock operations control building shall be run through the top of lock surface manholes as located on the Contract Drawings. These manholes act as a corridor for running cable into the basement of the lock operations control building and into the cable trays prior to dissemination to the power service distribution panel and other centralized operations within the basement. Space is available in the existing conduit to accommodate the datalogging wiring equipment if kept to a minimum for running into the basement to the SMS. Any additional space needed within the conduits shall be the Instrumentation Contractor's responsibility.

b. Multiplexers

Any multiplexer arrays selected for use with data logging devices are to permit additional instrument sensors to be connected to each datalogging unit.

c. Programmable Logic Control (PLC) System

Headwater, tailwater, and lock chamber pool water elevations are currently being measured on the existing lock structure using a Programmable Logic Control (PLC) system. This system utilizes pressure transducers located outside the lock operations building for measuring water elevations at the existing lock and dam on a real time monitoring basis. Cables from the transducers enter through manholes located on top of the lock surface and run into the basement of the lock operations building into a control box. The control box acts as a junction for processing and converting analog data to digital output format. SY-MAX brand Rack Addressor Cards are used to transmit the analog data to the processor and to relay the converted data to the PLC system's broadcast modem. The modem relays the water level data to designated computers at the lock. The control box of the existing PLC processor system is located as shown on the Contract Drawings.

The data acquisition system used in this Contract shall use this system as reference for tying in and time stamping water level elevations of headwater, tailwater, and chamber pool elevations (measured in feet). This system shall be used at all times any automated instrument is read for data reporting purposes. The Instrumentation Contractor is responsible for providing all necessary hardware, cables, and software for communicating between the host computer data collecting software on the SMS

computer and the existing PLC system's SY-MAX brand Rack Addressor Cards located within the control box. The existing modem within the control box can accommodate more connections.

4. Manual Data Collection

All data collected manually shall be entered into the data collection software on the host computer. Data shall be analyzed upon immediate recording and be uploaded into the host computer software. Manual data collection shall follow the frequency as specified in the execution portion of these specifications.

5. Alarm System

The data acquisition system shall incorporate an alarm feature that triggers an appropriate alarm message to 12 distinct telephone and 12 distinct electronic mail (email) destinations, including the two (2) lock operator control houses (towers) as well as the lock operations building, whenever threshold exceedance values are detected within the data acquisition system. At no point shall an alarm message be sent to any destination unless it has been verified by at least a second successive data reading exhibiting that a threshold value has been exceeded. This pertains to both the readings obtained once (1) every 60 seconds for autonomous data scanning as well as those obtained for reporting requirements. The message shall detail the location of the device(s) triggering the alarm and the location of all instruments involved that are connected to that device. The message shall also specify the magnitude by which the threshold value has been exceeded. The Instrumentation Contractor shall be held responsible for any false alarms the data acquisition system may detect and shall prepare a plan of action to be approved by the Contracting Officer that handles false alarms. Instrumentation Contractor is to ensure the complete telephone and email list is updated on a monthly basis with copies provided to the Contracting Officer, as well as the COE Construction Field Office (CFO).

The Contracting Officer will provide all pertinent phone numbers and email addresses at a later date. Instrumentation Contractor is to ensure that at least one person has been contacted within this list to ensure the message of threshold exceedance has been relayed and that immediate action is employed.

A detailed report shall be compiled each time the alarm is triggered that explains reason for alarm message. If the alarm is false, then in the report the Instrumentation Contractor shall submit method of action to get alarm system and all defective instrumentation (where applicable) repaired and back in working order.

The Instrumentation Contractor shall give all personnel on the site, both of the Government and other contractors that will be on-site anytime during this Contract, an orientation that describes the alarm system, its reliability, and its operation. Instrumentation Contractor is responsible for ensuring this orientation is conducted anytime a new contractor and workers (government or construction employees) arrive on site. The purpose of the orientation is to make everyone working at the lock and cofferdams aware of the system features, locations of instruments and automated data collecting devices, responsibilities of every person at the lock during construction, and the alarm system's ability to warn of potential danger to construction activities, cofferdams, and the existing lock.

In the event of a failure of pertinent elements of the automatic alarm system during phases of construction where either worker safety or the integrity of the project could be compromised by the alarm system failure as determined by the COR, then the Instrumentation Contractor will be required to implement a backup alarm system. This backup alarm system shall be functioning within 24 hours of the failure of the pertinent elements of the automatic alarm system. This backup shall be a manual type alarm system that utilizes manpower to read only the affected and pertinent automated instrumentation sensors connected to the defective alarm. Readings shall be obtained by using manual (portable) readout devices capable of reading the automated instrumentation sensors. After data is obtained from the portable readout device(s), they shall be compared immediately with threshold limits. Data shall be relayed to the software on the host computer and uploaded into the database(s) after reading. This manual backup alarm system shall be used until the main alarm system is restored. While the system is down, sensor readings on lock monoliths (or

cofferdam) adjacent to lock construction activity (a minimum of 3 monoliths or entire cofferdam affected) shall be obtained once (1) every half-hour until the main alarm system is restored. Any automated sensors not connected to the defected portion of the alarm system shall resume their normally scheduled frequency. After main alarm is restored, each sensor on the affected structure is to resume its normally scheduled frequency. In the event of threshold value exceedance, a second reading shall be obtained immediately. If the second reading verifies a threshold value has been exceeded, the CFO shall be notified immediately-specifying that threshold value exceedance has been detected from the manual alarm backup system.

In the case of an inclinometer sensor becoming defective, readings on the RBMD(s) for that lock wall monolith(s) shall serve in lieu of that inclinometer reading. In the case of a tiltmeter sensor(s) becoming defective, the respective RBMD(s) and sawcut(s) for that monolith(s) shall both be used to serve in lieu of the tiltmeter recording. Readings for these manually read instruments shall be once (1) an hour until the sensors are back in service.

6. Data Transmission /Telephone

Any telephone service for remote communication and data relay requirements both at the lock and remotely shall be supplied and maintained by the Instrumentation Contractor. The Instrumentation Contractor is responsible for coordinating telephone service installation, how all connections will be made (both remote and local to the lock), and any modifications to the existing system with Mr. George Grogan of the Nashville District COE. Communication selected for data transmission shall be compatible with all network communications in the CFO, the COE District Office, and the TVA Chattanooga office. Currently, the network connection speed at the lock is a T1 line at 100 megabytes per second (MBPS). Instrumentation Contractor is responsible for ensuring all telephone communication is coordinated with Information Management (IM) Personnel at both the COE and TVA offices as required. Instrumentation Contractor is responsible for providing an adequate number and quality of telephone and other communication linesnecessary for fulfilling all needs of the instrumentation system specified herein.

7. Power Supply

The Government will supply the AC power every month for the instrumentation system for the duration of this Contract. Any requirements (extra outlets, higher voltages, conduits, etc) to connect the instrumentation system to the existing power supply network shall be designed, furnished, installed, and maintained by the Instrumentation Contractor and approved by the Contracting Officer. A generator is available at the existing lock and will be provided by the Government as one (1) source of temporary backup power supply if necessary and as approved by the Contracting Officer.

8. Site Monitoring Station

The Site Monitoring Station (SMS) shall be located in the basement of the Lock Operations Building, as shown on the Contract Drawings. The Instrumentation Contractor shall use the working area for his host computer, file cabinets for storage of records and data collection forms, and working space for the operators. Working area is restricted to an area of 12 feet by 7 feet located directly beneath existing staircase going into the basement of the operations building. The Government will provide a separate 15-ampere (120 volts) breaker on the power service distribution panel for power requirements needed by the Instrumentation Contractor. Heating, cooling, and a minimal amount of working space lighting will be provided by the Government to accommodate seasonal changes and keep SMS equipment adequately maintained for duration of Contract. Any additional heating and cooling needs not already provided by the Government is to be provided by the Instrumentation Contractor. All data storage and archival supplies (CDs, file cabinets, etc.), supplies for report generation, and other items to be supplied by the

Instrumentation Contractor necessary for successful data collection and management are to be housed at the SMS work area or offsite at the Instrumentation Contractor's home office. An onsite equipment/storage trailer can be used with location to be within the Staging Area 5 as shown on the Contract Drawings.

The Contract Drawings show the existing cable trays (that support all exterior cables coming into the basement) and overhead pipes within the basement of the lock operations control building. All communication wiring from the data logging equipment under this Contract that is to enter the basement shall be run through these existing cable trays. The cable is to be run from these cable trays to the SMS host computer and other devices (PLC interface control box) by using secure wire fastening clamps to the overhead pipe shown near the site for the SMS as shown on Contract Drawings.

A portion of the basement wall will be removed at a later date for tunnel to the new lock. The portion of wall to be removed is to be located at approximately Stations 4+84 B and 4+90 B, as shown on the Contract Drawings. The Instrumentation Contractor is responsible for constructing a shield to prevent any water, concrete, and demolition dust/debris from infiltrating all the SMS equipment. Instrumentation Contractor's design and implementation of shield shall be approved by the Contracting Officer prior to construction of the shield.

9. Host Computer System

The host computer shall be located at the SMS. The host computer shall communicate with the Data Collection Equipment as well as the PLC system and transfer data to a database for data storage. The Instrumentation Contractor shall select and install a host computer system suitable for performing all required functions. As a minimum, the hardware shall include: a personal computer (IBM-Compatible) with a 1.0 GHz (or Pentium 4) processor, 1.44 MB floppy disk drive and interface, write-able CD ROM drive, a parallel printer interface, and a PC compatible keyboard; a 17" color monitor; a color laser jet printer with IBM compatibility; modem capabilities adequate for selected data acquisition system; and a desktop power surge protector. Other requirements necessary for software designed or selected by the Instrumentation Contractor for data collection, monitoring, and the alarm system are to be selected and provided by the Instrumentation Contractor.

10. Software

Software for the Host Computer shall be supplied by the Instrumentation Contractor and shall permit both manual and automated entry of data. Uploading of complete data acquisition system program or minor program changes shall be possible. Data collection software shall provide for the collection and accumulation of historical data. These data shall be stored on a hard disk in the SMS and appropriately identified by name, sensor, date and time acquired, engineering units, numerical value, and alpha-numeric labels. Graphic software shall be provided which permits specified time history and x-y plots with linear or logarithmic scales. A single screen display shall accommodate several different plots. The graphic software shall work in conjunction with the data historical files and have provisions for data entering, search and sort, as well as screen editing. Hard copies of plots and any data shall be printable from the printer at the SMS. Software shall also be capable of immediately uploading data to a database once erroneous data has been filtered out. Software shall allow the user to both assign and manually change threshold values (on both a high and low end range) for alarm triggering purposes. Such threshold values will be assigned by the Contracting Officer or his representative at a later date. System software shall also accommodate the connection of all automated and manually read cofferdam instrumentation. System software shall also include a virus protection program, approved by the Contracting Officer, with the capability of regular updates, that shall screen all files for viruses daily. A back-up copy of the latest versions of all system software shall be maintained both on-site as well as offsite at a secure location at all times.

11. Remote Monitoring Station

Remote Monitoring Stations (RMS) shall be located within the CFO, COE District Office in Nashville, and TVA's corporate office located in Chattanooga, TN. Each RMS shall consist of but not limited to the following Government-furnished hardware: one personal computer (IBM compatible PCs). Each RMS designated PC shall be equipped with the same type of processor and memory capability. It shall be the Instrumentation Contractor's responsibility to furnish, install, and support software on the existing CFO, COE and TVA PCs that will be compatible with the software necessary to permit access to the database(s) storing data for the project. The software shall be furnished with one (1) back-up copy and at least one (1) user's manual for each installed copy. The software shall have an open architecture that will allow for future changes and updates. Software and hardware furnished for use on existing COE and TVA computers shall become the property of the COE and TVA, respectively. The Instrumentation Contractor shall be responsible for supplying all other necessary materials, equipment, and accessories to make the communication linkage between the RMS, SMS, and the data collection equipment. Access to the network shall be password protected. The SMS need not be attended to initiate remote access to the database(s). Instrumentation Contractor is also responsible for all network access coordination with Information Management (IM) personnel at both the COE District Office for both CFO and COE District Office access and the TVA Corporate Office. At no point during this Contract will the PCs at each RMS be required to act as the host computer or the SMS for full time data monitoring.

12. Database Management System

The Instrumentation Contractor shall provide at least one (1) database and necessary components for storage of all automated and manually collected data (readings and observations). Location of database is to be determined by the Instrumentation Contractor and approved by the Contracting Officer. Communication between the database(s) and each RMS unit shall be coordinated with the COE and TVA IM branches. Access to the database shall allow each RMS complete electronic access to data within the database(s) at any time. Instrumentation Contractor shall be responsible for designing and/or purchasing appropriate software for the database for data observation and plotting capabilities on a real time basis of all instrumentation under this Contract. Instrumentation Contractor is responsible for making all connections necessary to ensure complete electronic access to read all data within the database(s) for each RMS and installing the software necessary to perform this task at each individual RMS. If more storage capacity is necessary on the selected database(s), database files shall be periodically archived by the Instrumentation Contractor to allow enough storage capacity. Archives shall be placed on CDs with a minimum of two (2) copies submitted to the Contracting Officer. The Instrumentation Contractor shall back up data daily and ensure that no data is lost due to backup procedures.

The Instrumentation Contractor shall provide for a daily back-up of the database, either on a wide area network server, or a web-site approved by the COE.

TP-2.12 DATA COLLECTION AND REPORTING FREQUENCY

All instrumentation shall be read on the basis as specified below for reporting and database management storage requirements. Additionally, all automated instruments shall be read every 60 seconds for autonomous data scanning to compare to threshold levels. The payment bases are instruments installed satisfactorily, and payment will not otherwise be made until the Instrumentation Contractor demonstrates that instruments and data acquisition system are properly functioning. If necessary and approved by the Contracting Officer, initial readings may be made manually using portable readout devices capable of reading each type of selected instrument sensor. The Instrumentation Contractor is responsible for providing such readout devices.

If any instrument indicates a significant sudden change in condition or reaches or exceeds a threshold level, the Contracting Officer or his authorized representative shall be notified immediately as described in TP-2.11 (c) 5

ALARM SYSTEM. This pertains to both autonomously obtained data and for data obtained at frequency requirements outlined below.

(a) Earthquakes and Rock Excavation Blasting

In the event of an earthquake, all automated instruments and manually read instruments, shall be read immediately after the event and every 12 hours thereafter for one week. This criteria holds for the lock wall and both cofferdams.

Significant blasting will occur during rock excavation activities for the new lock and downstream cofferdam construction; the maximum allowable peak particle velocity is expected to be 4 inches per second. The Instrumentation Contractor shall design the instrumentation system to accommodate the effects from the blasting. One possible alternative is to halt measurements duringall blasts; however, measurements on the instruments shall be resumed immediately after each blast. This shall be coordinated with the provisions given in paragraph TP-2.12 (g).

(b) Existing Lock Landwall

All instrumentation sensors shall be continuously monitored by the automated data collecting system. The remote sensing instruments shall be automatically recorded and downloaded to the SMS computer at frequencies specified below. All automated instrumentation connected to the data acquisition system shall be read and observed immediately before starting of any excavation activity adjacent to the existing lock wall or construction-blasting activity at the lock. Other frequencies include the following:

1. For the landwall monoliths, L-3 through L-25, each inclinometer, tiltmeter, and load cell sensor, readings shall be measured and recorded twice (2) everyday during baseline data collection-once (1) in the morning at 10:00 A.M. CST and once (1) in evening at 7:00 P.M. CST;

2. When excavation begins, both automated sensors and manually read instruments shall be read on at least four (4) monoliths adjacent to and completely spanning monoliths adjacent to any new lock excavation activity;

3. As excavation progresses, the automatic sensors and manually read instruments shall be read after each 10-foot increment of excavation. Monoliths to be monitored shall include those monoliths spanning the excavation activity as well as at least four (4) monoliths adjacent to the excavation work;

4. Load cell readings shall be obtained immediately before and immediately after stressing a row of inclined anchors in any monolith. These readings shall be taken at the cell or monolith being stressed and at the four (4) adjacent monoliths (in both directions along the principle axis of the lockwall) spanning the row of inclined anchors under concern. Inclinometer and tiltmeter sensors on these respective monoliths shall also be measured and recorded to observe how the monoliths may deflect under stressing of the anchors;

5. Additional readings shall be required if these or any other instruments indicate movements large enough to require verification as requested by the Contracting Officer;

6. The ambient temperature at the load-cell sensor locations shall be recorded at the time of the load-cell measurement. Once a month a manual reading shall be obtained on each load cell to verify the values being recorded by the automated monitoring system;

7. All other times, automated instruments are to be read at a minimum of two (2) times per week for reporting requirements.

(c) Cofferdam Instrumentation

All instrumentation sensors shall be continuously connected to the automated data collecting system at the SMS and monitoring for alarm purposes. The automatic sensing instruments shall be automatically recorded and downloaded to the SMS computer at frequencies specified below (for database storage and reporting requirements):

1. Piezometer transducers shall read piezometric levels within both cofferdams twice (2) a day: once (1) at 10:00 A.M. CST and once (1) at 7:00 P.M. CST;

2. For duration of Contract, one (1) reading shall be taken at 10:00 A.M. CST and one (1) at 7:00 P.M. CST. Additional readings shall be required if other instruments indicate movements large enough to require verification.

   All times are for Central Standard Time (CST). The system can be programmed to take readings on both the lock wall and each cofferdam within at least one (1) minute of the above times, if necessary, to prevent any "overloading" of the system.

(d) Manually Obtained Data

For each RBMD, the location of the "foot" (i.e. orientation) of depth micrometer over the reading hole on each axis shall be marked on each RBMD installed so as to allow consistency between successive readings. Depth micrometer shall be kept in calibration according to Manufacturer's specifications. The same depth micrometer must be used for each consecutive reading on an individual RBMD to ensure consistency between readings. Two (2) readings shall be recorded for each of the three (3) axes per RBMD with an average value obtained for each axis. The average value for each axis is to be the values manually entered into the data collection software. Readings shall be to the nearest 0.001-inch of deflection.

For all remaining phases of data collection after baseline data is collected, an average reading on any RBMD shall not deviate over the tolerance value that was established during the period of baseline data collection. If a situation occurs where the average value exceeds the tolerance value, the Instrumentation Contractor shall immediately notify the COE Project Engineer at the CFO informing him of any suspicious monolith movement.

Readings on all RBMDs shall be made every two (2) weeks during baseline data collection period. No readings shall be taken on RBMDs during filling of the lock chamber. Readings shall only be taken while the chamber is full and empty (not in a state of transition) during the baseline data collection; however, readings can be observed during a lockage event. Chamber condition shall be recorded on the data collection form as specified in paragraph TP-2.12 (e).

Each time a monolith's RBMD is observed, that monolith's respective saw cut shall be observed and lock chamber pool conditions recorded.

Saw cut measurements are observations that shall document any noticeable changes occurring since the previous observation. If no noticeable change has occurred, recording shall read "No noticeable change since last visual observation." If an observation shows any suspicious and adverse changes, the Instrumentation Contractor shall immediately notify the COE Project Engineer at the CFO to notify him of any suspicious changes in instrumentation immediately.

Alignment pins shall be surveyed at least once (1) a month during duration of Contract unless otherwise specified by the Contracting Officer.

All manually obtained data from instruments on lockwall and cofferdams shall be obtained at a minimum of two (2) times per month when no excavation or blasting takes place at the existing lock. Other reading frequencies may be periodically required and will be specified, as necessary, by the Contracting Officer.

(e) Data Handling

The Instrumentation Contractor shall prepare a field data collection form for each manually read instrument that is to be used while collecting/observing manually read instruments. The form is to be approved by the Contracting Officer prior to the start of data collection. Forms used in data collection shall be archived on-site for one (1) year.

The instrumentation data shall be recorded, processed, and immediately stored within the database management system as specified herein. All manually read data shall be reduced and prepared in a consistent report format for use by the Contracting Officer according to the reporting format also specified herein. The manually read data shall be entered immediately into the data collecting software and uploaded into the automated database management system to enable immediate access to data by the Contracting Officer. Data that is collected automatically shall be immediately stored in the database management system.

(f) Data Processing/Reporting

All instrumentation data (automated and manually collected) shall be summarized in a monthly report furnished with one (1) copy to the CFO Project Engineer, four (4) copies to the Contracting Officer, according to the following requirements:

1. For duration of the Contract, the report shall be submitted in hardcopy and electronic format (CD) at the end of each calendar month analyzing that month's data collection and findings as well as all work performed on-site with respect to this Contract. At least one (1) section of the report shall be cumulative to date analyzing all automated and manually read instruments for both the lock wall and each cofferdam once installed and monitored with respect to phasing schedule for duration of Contract;

2. Instrumentation Contractor is to ensure all erroneous and bad data has been filtered from raw data and graphs before saved on the database(s) and the submission of report as outlined above;

3. All automated sensor readings shall be reduced in accordance with the Manufacturer's recommendations;

4. All plots shall be produced in color, legible, reproducible (CD format requirement also), contain a detailed legend, and show all units and titles. Graphs on the CD must be compatible with Microsoft Windows 2000 and XP operating environments;

5. Contractor is required to monitor the deflected shape of the inclinometer casings and compare that data with the initial data sets after installation. The readings shall be reduced in accordance with the Manufacturer's recommendations, and plotted versus elevation in feet. Inclinometer data shall be reduced to cumulative movement and plotted versus time;

6. All readings obtained from instrument sensors shall be converted, as necessary, from output voltages to an amount of deflection, tilt (measured in degrees, minutes, and seconds), load (in

pounds), depth and/or elevation (in feet), or other beneficial output value for reporting and plotting requirements. Data stored in the database(s) shall be the converted value with corresponding units specified;

7. Tiltmeter data shall be reduced to degrees, minutes, and seconds from initial orientation and plotted versus time (in months and subcategorized into years);

8. Piezometric data shall be reduced to elevation in feet and be plotted versus time (months and subcategorized into years) and headwater and tailwater pool elevations;

9. Alignment pin readings shall be reduced to total horizontal and vertical movement (in inches) from the initial positions and shall be plotted versus time;

10. For monthly reports, the data plotted versus time shall be shown in plots spanning the one-month report period and shall indicate maximum and minimum instrument readings spanning the life of the instrument. The reading data shall include the following information: (1) instrument location number; (2) date of reading; (3) reduced readings; (4) all remarks from any field observations; (5) water elevation; (6) excavation elevation near that instrument; and (7) ambient temperature.

11. RBMD data shall be reported in raw data (tabular form) as well as a cumulative plot. The plot shall show the initial amount of deflection of the depth micrometer as well as all data to date (measured in inches of deflection). Each monolith shall be plotted separately-showing all three directions of deflection. The x-axis of the plot shall be time (measured in corresponding month and subcategorized into years) with y-axis in amount of deflection.

12. All automated data shall include corrections for temperature changes, as recommended by the manufacturer (and necessary for calculations).

Each report shall highlight any significant changes in measured values, and shall report what new lock construction or environmental activities occurred which could have produced changes in values.

The Instrumentation Contractor shall be responsible for any “special” daily reports for instrumentation evaluation purposes if called upon by the Contracting Officer. Such reports shall follow same format as monthly reports with Contracting Officer’s option to reduce some of those requirements that may need to be included.

The monthly summary report shall be prepared with instrumentation data plotted graphically. All plots within reports and on CDs must be generated within Microsoft Excel 2000 or approved equal compatible with Windows 2000 and Windows XP operating environments. Contracting Officer shall have the ability to direct Instrumentation Contractor to change reporting, scaling, and graphical output formats until Government satisfaction is achieved. Plots shall have the capability of accurately showing two (2) y-axes that depict instrument sensor value on the left (1^{st}) y-axis and chamber, headwater, and tailwater elevation on the right (2^{nd}) y-axis (with different and legibly colored lines used for each item depicted).

(g) Data Acquisition System Scheduled Shutdowns

At times to be specified by the Contracting Officer, the alarm feature and/or complete automated data acquisition system may need to be temporarily “turned off.” This is to minimize amount of false alarms that may be initiated due to lock construction activities. Contracting Officer will coordinate all times with Instrumentation Coordinator within four (4) hours of planned activity.

TP-2.13 MAINTENANCE AND RELIABLITY

The Instrumentation Contractor is responsible for providing any hardware and/or other necessary item(s) required to ensure the entire instrumentation and data acquisition/reporting system is functioning according to Manufacturer's specifications, and for maintaining the system in satisfactory working order for the length of the contract. This shall include repairing or replacing inoperable or unreliable components at no additional cost to the Government. Before work begins on a delivery order, the Instrumentation Contractor shall prepare a list of all extra components that are required for continuous operation of the system and quantities to be stockpiled on-site. He shall submit this list to the Contracting Officer for approval. The items on the approved list shall then be available at the site during the entire period of the delivery order. If a stockpiled item is used, it shall be immediately replaced with the same item that was used. In the event of a malfunction or breakdown, repair or replacement shall be initiated immediately after a faulty component is identified. The Instrumentation Contractor shall notify the Contracting Officer of the nature of the malfunction or breakdown within 12 hours, and shall provide an estimate of when that part of the system will be back in service. Depending upon the status of the lock construction at that time, the Contracting Officer will then decide whether or not a manual backup system will need to be implemented by the Instrumentation Contractor. If an instrument does not function properly for a cumulative total of 48 hours or more within any 30 consecutive calendar day period, the Instrumentation Contractor will not be paid according to Measurement and Payment until repairs have been made and approved by the Contracting Officer.

TP-2.14 MEASUREMENT AND PAYMENT

The work of this contract will be measured and paid for as described below. Additional work required to compensate for malfunctioning equipment, such as, but not limited to manual alarm procedures, manual data collection with portable readout devices, extra readings of the RBMDs and sawcuts required to substitute for malfunctioning inclinometers or tiltmeters, and/or replacement of equipment, will not be paid for separately. All costs for items of work that are not specifically mentioned in a particular pay item shall be included in the item most closely associated with the work involved.

(a) Inclinometer Casing will be measured by the linear foot furnished and installed in the existing lock wall. Payment will be made at the contract unit price per linear foot, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the casing, including, but not limited to, the casing sections, couplings, cap, grout and metal hole cover.

(b) Inclinometer Down-hole Cabling, Support System, Etc. will be measured by the linear foot of cased hole in which cabling, etc. is furnished and installed (i.e. if the hole depth is 100 feet, the measured length will be 100 feet). Payment will be made at the contract unit price per linear foot, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the signal cabling and sensor supports- including, but not limited to, rods, wire, tubing and brackets.

(c) Inclinometer Sensors will be measured per each sensor furnished and installed. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the sensor, joints and wheel assemblies, including, but not limited to, manufacturer's technical support, initial calibration and testing, and as-built records.

(d) Inclinometer Sensor Monitoring and Maintenance will be measured per each sensor-month of monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each sensor-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the sensor, including, but not limited to, re-calibration, testing, data recording and review, repairs, replacement of faulty equipment, and reporting of operation and maintenance activities. For purposes of measurement and payment the total quantity of sensor-months is defined as the product of the quantity of sensors being monitored and maintained and the quantity of months in the approved operation.

(e) Tiltmeters will be measured per each tiltmeter furnished and installed. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the tiltmeter and protective cover, including, but not limited to, manufacturer's technical support, initial calibration and testing, and as-built records.

(f) Tiltmeter Monitoring and Maintenance will be measured per each meter-month of monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each meter-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the tiltmeter, including, but not limited to, re-calibration, testing, data recording and review, repairs, replacement of faulty equipment, and reporting of operation and maintenance activities. For purposes of measurement and payment the total quantity of meter-months is defined as the product of the quantity of meters being monitored and maintained and the quantity of months in the approved operation.

(g) Load Cells Connection to Data Acquisition System will be measured per each cell connected to the system. Payment will be made at the contract unit price per each, which shall constitute full compensation for all labor and materials necessary for the complete and satisfactory connection, including, but not limited to, manufacturer's technical support, initial calibration and testing, and as-built records.

(h) Load Cell Monitoring and Maintenance will be measured per each cell-month of monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each cell-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the load cell, including, but not limited to, re-calibration, testing, data recording and review, repairs, replacement of faulty equipment, and reporting of operation and maintenance activities. For purposes of measurement and payment the total quantity of cell-months is defined as the product of the quantity of cells being monitored and maintained and the quantity of months in the approved operation.

(i) Piezometer Transducers will be measured per each sensor furnished and installed. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the sensor including, but not limited to, manufacturer's technical support, initial calibration and testing, and as-built records.

(j) Piezometer Monitoring and Maintenance will be measured per each meter-month of piezomter monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each meter-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the piezometer, including, but not limited to, re-calibration, testing, data recording and review, repairs, replacement of faulty equipment, and reporting of operation and maintenance activities. For purposes of measurement and payment the total quantity of meter-months is defined as the product of the quantity of piezometers being monitored and maintained and the quantity of months in the approved operation.

(k) Relative Block Movement Devices (RBMD) will be measured per each device furnished and installed. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory furnishing and installation of the device and protective cover, including, but not limited to, initial readings, and as-built records.

(l) RBMD Maintenance will be measured per each device-month of RBMD maintenance of approved operation. Payment will be made at the contract unit price per each device-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory maintenance of the device, including, but not limited to, repairs, replacement of damaged equipment, and reporting of maintenance activities. For purposes of measurement and payment the total quantity of device-

months is defined as the product of the quantity of RBMD being maintained and the quantity of months in the approved operation.

(m) RBMD Monitoring will be measured per device measurement. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory monitoring of the device, including, but not limited to, data recording and reviews, and reporting of operation activities. The minimum payment for any day that readings are requested or required will be for four devices per day, even if the number requested or required by the Government is less than four per day.

(n) Sawcuts will be measured per each satisfactory cut performed. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory construction of the sawcut, including, but not limited to, as-built records.

(o) Sawcut Monitoring and Maintenance will be measured per each sawcut-month of sawcut monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each sawcut-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory monitoring and maintenance of the sawcut, including, but not limited to, cleaning, replacement of damaged cuts, and reporting of operation and maintenance activities. For purposes of measurement and payment the total quantity of sawcut-months is defined as the product of the quantity of sawcuts being monitored and maintained and the quantity of months in the approved operation.

(p) Alignment Pin Monitoring will be measured per pin monitored. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory monitoring of the pin, including, but not limited to, cleaning pins, reporting of damaged pins, and furnishing and installing independent reference points. The minimum payment for requested or required measurements will be three (3) pin measurements per day, even if the number requested or required by the Government is less than three (3) per day.

(q) Data Acquisition System Maintenance will be measured per month that the particular phase of data acquisition system is in good operating order. Payment will be made per month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the data acquisition system, including, but not limited to, the (SMS) facilities; the host computer and associated equipment; PLC hookup; remote stations; data transmittal from the instrument locations to the SMS (hardwire or wireless); collecting, processing, and storing data; alarm system/emergency actions; repairs and replacement of faulty equipment; and reporting of operation and maintenance activities. Delivery Order No. 1 will contain the largest number of components to be connected to the data collection system-due to initial requirements for startup of data collection. Each successive delivery order shall be additions to the majority of the components selected in Delivery Order No. 1.

(r) Data Acquisition System Installation will not be measured for payment. Payment will be made at the contract lump sum price per phase of system installation after its full and successful installation, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory installation of the data acquisition system, including, but not limited to, the site monitoring station (SMS) facilities; the host computer and associated equipment; PLC hookup; data collection equipment; signal cables and data transmission equipment (hardwire or wireless); all necessary software; and alarm system.

(s) Weekly Reports will be measured per each week that a report is furnished. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory furnishing of the processed data, tabulated, plotted

and compiled in the formats specified, including, but not limited to, production of multiple bound hardcopies and compact discs, and delivery costs.

(t) Monthly Reports will be measured per each month that a report is furnished. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory furnishing of the processed data, tabulated, plotted and compiled in the formats specified, including, but not limited to, production of multiple bound hardcopies and compact discs, and delivery costs.

(u) Special Reports will be measured per each report that is furnished. Payment will be made at the contract unit price per each, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory furnishing of the processed data, tabulated, plotted and compiled in the formats specified, including, but not limited to, production of multiple bound hardcopies and compact discs, and delivery costs.

END OF SECTION

TECHNICAL PROVISIONS
Section 3
Submittal Procedures

TP-3.1 SCOPE OF WORK

This section covers procedures to be used in making submittals called for in other sections of the Specifications.

TP-3.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

a. Government Approval. Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. They are considered to be "shop drawings."

b. Information Only. All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings."

TP-3.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Instrumentation Contractor of the responsibility for any error which may exist, as the Instrumentation Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory performance of the instrumentation system. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

TP-3.4 DISAPPROVED SUBMITTALS

The Instrumentation Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Instrumentation Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

TP-3.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

TP-3.6 PAYMENT

No separate payment will be made for the work covered under this section. The costs thereof shall be included in the item to which the work pertains.

TP-3.7 GENERAL SUBMITTAL REQUIREMENTS

The Instrumentation Contractor shall issue submittals as required by the Specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the Contract Drawings. Each submittal shall be complete and in sufficient detail to allow ready

determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: all Instrumentation Contractors, manufacturers, and fabricators drawings; descriptive literature including, but not limited to, catalog cuts, diagrams, operating charts or curves; test reports; samples; Operation and Maintenance (O&M) manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby.

TP-3.8 SUBMITTAL REGISTER (ENG FORM 4288)

Enclosed as Exhibit C is an ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all-inclusive and additional submittals may be required. Columns "d" thru "q" have been completed by the Government. The Instrumentation Contractor shall complete columns "a," "b," "c," and "r" thru "x" and return 2 completed copies to the Contracting Officer for approval within 10 calendar days after Notice to Proceed has been issued. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the Contract. The submittal register and the progress schedules shall be coordinated. The Instrumentation Contractor shall submit updates of the submittal register every 90 days.

TP-3.9 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days-exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

TP-3.10 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025), included as Exhibit D, shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Instrumentation Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the Specification paragraph and/or sheet number of the Contract Drawings pertinent to the data submitted for each item.

TP-3.11 SUBMITTAL OF SHOP DRAWINGS

a. Submission. The Instrumentation Contractor shall submit to the Contracting Officer seven (7) copies of all shop drawings of items requiring shop inspection and five (5) copies of all other shop drawings as called for under the various headings of these specifications. The drawings shall be submitted using transmittal forms ENG Form 4025. These drawings shall be complete and detailed. The Instrumentation Contractor shall certify by signature on the ENG Form 4025 that he has reviewed the shop drawings in detail and that they are correct and in strict conformance with the contract drawings and specifications, except as may be otherwise explicitly stated. All proposed deviations or departures from the contract documents shall be noted on the transmittal ENG Form 4025 and the reasons for the deviations set forth in writing and such deviation annotated on the shop drawing. Each transmitted drawing or item shall be identified as having been reviewed and certified by being stamped, signed, and dated by the Instrumentation Contractor.

b. Approval. Submittals requiring Contracting Officer approval action are so designated in the contract documents and, if approved, each copy of the drawings will be identified as having received such approval by being so stamped and dated. The Instrumentation Contractor shall make any corrections required by the Contracting Officer. If the Instrumentation Contractor considers any correction indicated on the drawings to constitute a change

to the contract drawings or specifications, notice as required by under Contract Clause entitled CHANGES shall be given to the Contracting Officer. Six (6) copies of all shop drawings of items requiring shop inspection and four (4) copies of all other shop drawings will be retained by the Contracting Officer and one (1) set will be returned to the Instrumentation Contractor. The approval of the drawings by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory.

c. Information Purposes Only Submittals. All other submittals are considered to be for information purposes only and shall be subject to review action by the Contracting Officer. Any submittals for information purposes only found to contain errors or omissions shall be re-submitted as one requiring "approval" action. No adjustment for time or money will be allowed for corrections required as a result of noncompliance with Plans and Specifications.

d. Samples. All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification.

TP-3.12 SUBMITTAL OF CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in two (2) copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Instrumentation Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test and calibration reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Instrumentation Contractor from furnishing satisfactory material.

TP-3.13 DEVIATIONS

For submittals which include proposed deviations requested by the Instrumentation Contractor, the column "variation" of ENG Form 4025 shall be checked. The Instrumentation Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

TP-3.14 CONTROL OF SUBMITTALS

The Instrumentation Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Instrumentation Contractor scheduled submittal date shown on the approved "Submittal Register."

TP-3.15 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four (4) copies of the submittal will be retained by the Contracting Officer and one (1) copy of the submittal will be returned to the Instrumentation Contractor. If the Instrumentation Contractor needs more than one copy, additional copies shall be submitted.

TP-3.16 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Instrumentation Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Instrumentation Contractor from the obligation to furnish material conforming to the Plans and Specifications; will not prevent the Contracting Officer from requiring removal and replacement of non-conforming products incorporated in the work; and does not relieve the Instrumentation Contractor of the requirement to furnish samples for check testing by the Government.

TP-3.17 STAMPS

Stamps used by the Instrumentation Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s).

SIGNATURE _____

TITLE _____

DATE _____

END OF SECTION

TECHNICAL PROVISIONS
Section 4
Contractor Quality Control

TP-4.1 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

TP-4.2 CQC GENERAL REQUIREMENTS

The Instrumentation Contractor is responsible for quality control and shall establish and maintain an effective quality control system as specified herein. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all operations, both onsite and offsite, and shall be keyed to the proposed installation sequence. The Instrumentation Coordinator will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the Contract. The Instrumentation Coordinator has the responsibility for the overall management of the project including quality and production.

TP-4.3 QUALITY CONTROL PLAN

a. General. The Instrumentation Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan. The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Work will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

b. Content of the CQC Plan. The CQC Plan shall include, as a minimum, the following to cover all operations, both onsite and offsite, including work by subcontractors, fabricators, and suppliers:

1. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the Instrumentation Coordinator.

2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

3. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager-including authority to stop work which is not in compliance with the Contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.

4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, and suppliers. These procedures shall be in accordance with SECTION 3 SUBMITTAL PROCEDURES.

5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person

responsible for each test. (Field-testing facilities/equipment shall be approved by the Contracting Officer.)

6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

7. Procedures for tracking deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

8. Reporting procedures, including proposed reporting formats.

9. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

c. Acceptance of Plan. Acceptance of the Instrumentation Contractor's plan is required prior to the start of work. Acceptance is conditional and will be predicated on satisfactory performance during the contract period. The Government reserves the right to require the Instrumentation Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

d. Notification of Changes. After acceptance of the CQC Plan, the Instrumentation Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

TP-4.4 COORDINATION MEETING

Before start of work and prior to acceptance by the Government of the CQC Plan, the Instrumentation Contractor shall meet with the Contracting Officer or his authorized representative and discuss the Instrumentation Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Instrumentation Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Instrumentation Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Instrumentation Contractor.

TP-4.5 QUALITY CONTROL ORGANIZATION

a. General. The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Instrumentation Contractor shall provide a CQC organization which shall ensure compliance with the Contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

b. CQC System Manager. The Instrumentation Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Instrumentation Contractor. The CQC System Manager shall be a graduate engineer, or a graduate of construction management, with a minimum of three (3) years experience on work similar to this Contract, or a technician with five (5) years construction quality management experience. This CQC System Manager shall be on the site at all times during installation of instrumentation and will be employed by the Instrumentation Contractor. The CQC System Manager may also have duties as Instrumentation Coordinator in

addition to quality control. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

c. CQC Personnel. In addition to CQC personnel specified elsewhere in the contract, the Instrumentation Contractor shall provide as part of the CQC organization, as needed, specialized personnel to assist the CQC System Manager for the following areas: electrical, mechanical, civil, structural, environmental, architectural, materials technician, and submittals clerk. The Instrumentation Contractor's CQC System Manager and supplemental staff members for all instrumentation work under this Contract shall be experienced in all aspects of the proposed systems, equipment, tests, and installation and data collection procedures. The Instrumentation Contractor shall present to the Contracting Officer the credentials of his CQC System Manager and staff members that will be performing CQC for instrumentation work under this Contract, showing these individuals are versed in the various necessary inspections, test procedures and record keeping techniques. Each CQC staff member shall have had suitable training and experience for inspection of instrumentation work, test procedures, and record keeping as presented herein. These individuals shall: be employed by the Instrumentation Contractor unless waived in writing by the Contracting Officer; be responsible only to the CQC system manager; be physically present at the site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. Instrumentation Contractor shall have a qualified supplemental staff for instrumentation. This staff shall provide all CQC inspection of instrumentation work, conduct necessary tests and interpret test results, and perform the necessary record keeping. This CQC staff shall possess sufficient experience in instrumentation design, installation and monitoring, and testing of instrumentation installations similar to those specified. The CQC staff shall make observations of all ongoing instrumentation work, and shall submit records for all instrumentation installations, tests, and manual data collection.

Experience Matrix

Area	Qualifications
Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs.. related experience
Electrical	Graduate Electrical Engineer with 2 yrs. related experience or person with 5 yrs. related experience
Submittals	Submittal Clerk with 1 yr. experience

d. Additional Requirement. In addition to the above experience and education requirements, and within ninety (90) days of his appointment, the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors" or shall have a certificate of this training within the last five (5) years.

e. Organizational Changes. The Instrumentation Contractor shall maintain his CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Instrumentation Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

TP-4.6 SUBMITTALS

Submittals shall be made as specified in SECTION 3 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

TP-4.7 CONTROL

Contractor Quality Control is the means by which the Instrumentation Contractor ensures that the work, to include that of subcontractors and suppliers, complies with the requirements of the contract. The Instrumentation

Contractor shall establish and maintain a quality control system for all instrumentation program work. The Instrumentation Contractor's QC staff shall perform all necessary inspections including those conducted for safety and conformance with this technical section, and shall report all findings and any problems to the Contracting Officer. All inspection and test result forms for instrumentation work shall be designed by the Instrumentation Contractor and approved by the Contracting Officer. Inspections and tests shall be conducted in accordance with the paragraphs herein. The results of all inspections and tests required under this section shall be recorded on the approved forms for the particular inspection or test. The Instrumentation Contractor's QC staff member shall deliver these forms to the Contracting Officer. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

a. Preparatory Phase. This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

1. A review of each paragraph of applicable specifications.

2. A review of the Contract Drawings.

3. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

4. Review of provisions that have been made to provide required control inspection and testing.

5. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

6. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

7. A review of the appropriate activity hazard analysis to assure safety requirements are met.

8. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document tolerances and workmanship standards for that feature of work.

9. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

10. Discussion of the initial control phase.

11. The Government shall be notified at least 48 hours in advance of beginning any of the required actions of the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the Instrumentation Coordinator, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Instrumentation Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet Contract Specifications.

b. Initial Phase. This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

1. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

2. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

4. Resolve all differences.

5. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

6. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

7. The initial phase shall be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

c. Follow-up Phase. Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Instrumentation Contractor shall not build upon nor conceal non-conforming work.

d. Additional Preparatory and Initial Phases. Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

TP-4.8 TESTS

a. Testing Procedure. The Instrumentation Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product that conforms to Contract requirements. Testing includes operation, and/or acceptance, as well as performance tests carried out in the presence of the Contracting Officer or his representative.. A letter of certification shall be submitted to the Contracting Officer stating testing has been performed as required in these specifications. The Instrumentation Contractor shall perform the following activities and record and provide the following data:

1. Verify that testing procedures comply with Contract requirements.

2. Verify that facilities and testing equipment are available and comply with testing standards.

3. Check test instrument calibration data against certified standards.

4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

5. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

b. Capability Check of Testing Equipment. The Government reserves the right to check calibration and testing for compliance with the standards set forth in the Contract Specifications.

c. On-Site Testing Equipment. The Government reserves the right to utilize the Instrumentation Contractor's control testing equipment to make assurance tests and to check the Instrumentation Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

TP-4.9 COMPLETION INSPECTION

a. Punch-Out Inspection. Near the completion of all work or any increment thereof established by a completion time stated in the delivery order or task order or stated elsewhere in the Specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved Drawings and Specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Instrumentation Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

b. Pre-Final Inspection. The Government will perform this inspection to verify that the work is complete and fulfills Contract requirements for each phase of the Contract. A Government Pre-Final Punch List may be developed as a result of this inspection. The Instrumentation Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work for each distinct phase of Contract.

c. Final Acceptance Inspection. The Instrumentation Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Instrumentation Contractor's assurance that all specific items previously identified to the Instrumentation Contractor as being unacceptable, along with all remaining work performed under the Contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Instrumentation Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Instrumentation Contractor for the Government's additional inspection cost.

TP-4.10 GENERAL DOCUMENTATION REQUIREMENTS

The Instrumentation Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Instrumentation Contractor/subcontractor name and title(s) and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and people performing the work.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals reviewed, with contract reference, by whom, and action taken.

g. Off-site surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in Plans and/or Specifications.

j. Instrumentation Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

TP-4.11 AS-BUILT DRAWINGS

As-built drawings requirements are stated in Section 5 AS-BUILT DRAWINGS.

TP-4.12 SAMPLE FORMS

A sample CQC Report form is enclosed as an Exhibit E.

TP-4.13 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Instrumentation Contractor of any detected noncompliance with the foregoing requirements. The Instrumentation Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Instrumentation Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Instrumentation Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Instrumentation Contractor.

TP-4.14 DEFICIENCY TRACKING SYSTEM

The Instrumentation Contractor shall maintain a cumulative list of deficiencies identified for the duration of the project. Deficiencies to be listed include those identified by the Contractor's Quality Control observations, test failures, Government oral observations and Notifications of Noncompliance. As a minimum, the list shall include the information contained in the Deficiency List included as Exhibit F. A current copy of the list shall be maintained at the project site at all times and shall be made available for review by Government personnel. Copies of updated listings shall be submitted to the CO at least every 30 days. Payment will be withheld for deficient work until it has been corrected.

TP-4.15 QUALITY ASSURANCE

During the course of the Contract, the Instrumentation Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Instrumentation Contractor activities, or that will reflect outstanding or future items needing the attention of the Instrumentation Contractor. The Instrumentation Contractor will acknowledge receipt of these comments by specific number reference on his Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification.

END OF SECTION

TECHNICAL PROVISIONS

Section 5
As Built Drawings

TP-5.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Technical Section 3 Submittal Procedures.

a. As-Built Drawings [GA]. Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one (1) set of electronic CADD drawing files in the specified format.

TP-5.2 AS-BUILT DRAWINGS

This paragraph covers as-built drawings complete, as a requirement of the Contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to Contract Drawings that are revised to be used for final as-built drawings.

a. Government Furnished Materials. One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the work conference.

b. Working As-Built and Final As-Built Drawings. The Instrumentation Contractor shall revise one (1) set of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final as-built drawings shall be prepared after the completion of each phase of work as listed in the Contractor Quality Control Plan. The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Instrumentation Contractor prior to submission of each monthly pay estimate. If the Instrumentation Contractor fails to maintain the working and final as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Instrumentation Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

1. The location and dimensions of any changes within the existing lock and the cofferdams that affect the instrumentation system.

2. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Instrumentation Contractor.

3. Changes or modifications which result from the final inspection.

4. Where Contract Drawings or Specifications present options, only the option selected for construction shall be shown on the final as-built prints.

5. Systems designed or enhanced by the Instrumentation Contractor, such as new conduit lines, etc.

6. Modifications (change order price shall include the Instrumentation Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

   (a) Directions in the modification for posting descriptive changes shall be followed.

   (b) A Modification Circle shall be placed at the location of each deletion.

   (c) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.

   (d) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).

   (e) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.

   (f) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.

7. Surveyed locations and elevations of all instruments and reference monuments shall be noted on the as-built drawings and submitted to the Contracting Officer.

c. Drawing Preparation. The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Instrumentation Contractor shall be satisfactorily replaced by the Instrumentation Contractor at no expense to the Government.

Color code for changes shall be as follows:

1. Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.

2. Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.

3. Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.

d. Computer Aided Design and Drafting (CADD) Drawings. Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare new additional drawings. Additions and corrections to the Contract Drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the Contract Drawings. Additions and corrections to the Contract Drawings shall be accomplished using CADD files. The Instrumentation Contractor will be furnished Microstation (.dgn) electronic vector files. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). The Instrumentation Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings in MicroStation format.

The Contracting Officer will review final as-built drawings for accuracy and the Instrumentation Contractor shall make required corrections, changes, additions, and deletions.

1. The Contract Drawing files shall be renamed in a manner related to the Contract Number (i.e., DACW62-02-R-0005.DGN) as instructed in the Pre-Work conference. Marked-up changes shall be made only to those renamed files. All changes shall be made on the layer/level as the original item.

2. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Instrumentation Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original Contract Drawings shall be dated in the revision block.

3. Within 20 days after Government approval of all of the working as-built drawings for a phase of work, the Instrumentation Contractor shall prepare the final as-built drawings for that phase of work and submit two (2) sets of prints of these drawings for Government review and approval. The Government will promptly return one (1) set of prints annotated with any necessary corrections. Within 10 days the Instrumentation Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 20 days of substantial completion of all phases of work, the Instrumentation Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one (1) set of Microstation (.dgn) electronic vector files on compact disc, read-only memory (CD-ROM), and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the Contract Drawing files supplied by the Government. These drawings shall be according to requirements specified in TP-2.5 (d) of these technical provisions. Any transactions or adjustments necessary to accomplish this is the responsibility of the Instrumentation Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Instrumentation Contractor under this Contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is issued to the Instrumentation Contractor.

TP-5.3 FINAL APPROVED SHOP DRAWINGS

The Instrumentation Contractor shall furnish final approved project shop drawings 30 days after completion of each phase of Contract.

TP-5.4 CONSTRUCTION CONTRACT SPECIFICATIONS

The Instrumentation Contractor shall furnish final as-built contract specifications, including modifications thereto, 30 days after completion of each phase of Contract.

TP-5.5 PAYMENT

No separate payment will be made for the work required under this section, and all costs accrued in connection with such shall be considered a subsidiary obligation of the Instrumentation Contractor.

END OF SECTION

Section E - Inspection and Acceptance

CLAUSES INCORPORATED BY REFERENCE

52.211-18	Variation in Estimated Quantity	APR 1984
52.246-4	Inspection Of Services--Fixed Price	AUG 1996

CLAUSES INCORPORATED BY FULL TEXT

52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than $10,000.00, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor:

(1) Any order for a single item in excess of $2,000,000.00;

(2) Any order for a combination of items in excess of $2,000,000.00; or

(3) A series of orders from the same ordering office within 180 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 7 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1 Alt I	Definitions (Dec 2001) --Alternate I	MAY 2001
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	APR 1991
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 1997
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.214-26	Audit and Records--Sealed Bidding	OCT 1997
52.214-27	Price Reduction for Defective Cost or Pricing Data - Modifications - Sealed Bidding	OCT 1997
52.214-28	Subcontracting Cost Or Pricing Data--Modifications--Sealed Bidding	OCT 1997
52.214-29	Order Of Precedence--Sealed Bidding	JAN 1986
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.219-4	Notice of Price Evaluation Preference for HUBZone Small Business Concerns	JAN 1999
52.219-8	Utilization of Small Business Concerns	OCT 2000
52.219-9	Small Business Subcontracting Plan	JAN 2002
52.222-1	Notice To The Government Of Labor Disputes	FEB 1997
52.222-3	Convict Labor	AUG 1996
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	SEP 2000
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era and Other Eligible Veterans	DEC 2001
52.222-41	Service Contract Act Of 1965, As Amended	MAY 1989
52.222-43	Fair Labor Standards Act And Service Contract Act - Price Adjustment (Multiple Year And Option)	MAY 1989
52.223-5	Pollution Prevention and Right-to-Know Information	APR 1998
52.223-6	Drug Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	OCT 2000
52.225-1	Buy American Act--Supplies	MAY 2002
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.227-17	Rights In Data-Special Works	JUN 1987
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.229-3	Federal, State And Local Taxes	JAN 1991

52.232-1	Payments	APR 1984
52.232-8	Discounts For Prompt Payment	FEB 2002
52.232-11	Extras	APR 1984
52.232-17	Interest	JUN 1996
52.232-23	Assignment Of Claims	JAN 1986
52.232-25	Prompt Payment	FEB 2002
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	MAY 1999
52.233-1	Disputes	DEC 1998
52.233-3	Protest After Award	AUG 1996
52.237-2	Protection Of Government Buildings, Equipment, And Vegetation	APR 1984
52.239-1	Privacy or Security Safeguards	AUG 1996
52.242-13	Bankruptcy	JUL 1995
52.243-1 Alt III	Changes--Fixed Price (Aug 1987) - Alternate III	APR 1984
52.244-6	Subcontracts for Commercial Items	MAY 2002
52.246-25	Limitation Of Liability--Services	FEB 1997
52.249-4	Termination For Convenience Of The Government (Services) (Short Form)	APR 1984
52.249-8	Default (Fixed-Price Supply & Service)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991

CLAUSES INCORPORATED BY FULL TEXT

52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days of expiration of the option.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 days prior to expiration; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 5 years plus a total extension of performance not to exceed 6 months if required.
(End of clause)

52.222-42 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY: IT IS NOT A WAGE DETERMINATION
Employee Class Monetary Wage-Fringe Benefits

OCCUPATION TITLE	MINIMUM WAGE RATE
Accounting Clerk I	$36,981.10
Accounting Clerk II	$45,808.54
Word Processor	$33,050.52
Computer Operator	$56,080.00
Computer Programmer I	$73,635.54
Computer Programmer II	$84,515.38
Electrician Maintenance	$24.42 per hour
Survey Party Chief	$56,021.01
Survey Aide	$36,981.10
Survey Technician	$45,085.54
Civil Engineering Technician	$56,031.01
Drafter I	$36,981.10
Drafter III	$45,808.54
Engineering Technician I	$36,981.10
Engineering Technician II	$45,808.54
Engineering Technician IV	$56,031.01

(End of clause)

52.248-1 VALUE ENGINEERING (FEB 2000)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any net acquisition savings realized from accepted VECP's, in accordance with the incentive sharing rates in paragraph (f) below.

(b) Definitions. "Acquisition savings," as used in this clause, means savings resulting from the application of a VECP to contracts awarded by the same contracting office or its successor for essentially the same unit. Acquisition savings include--

(1) Instant contract savings, which are the net cost reductions on this, the instant contract, and which are equal to the instant unit cost reduction multiplied by the number of instant contract units affected by the VECP, less the Contractor's allowable development and implementation costs;

(2) Concurrent contract savings, which are net reductions in the prices of other contracts that are definitized and ongoing at the time the VECP is accepted; and

(3) Future contract savings, which are the product of the future unit cost reduction multiplied by the number of future contract units in the sharing base. On an instant contract, future contract savings include savings on increases in quantities after VECP acceptance that are due to contract modifications, exercise of options, additional orders, and funding of subsequent year requirements on a multiyear contract.

"Collateral costs," as used in this clause, means agency cost of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contracting office" includes any contracting office that the acquisition is transferred to, such as another branch of the agency or another agency's office that is performing a joint acquisition action.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Future unit cost reduction," as used in this clause, means the instant unit cost reduction adjusted as the Contracting Officer considers necessary for projected learning or changes in quantity during the sharing period. It is calculated at the time the VECP is accepted and applies either (1) throughout the sharing period, unless the Contracting Officer decides that recalculation is necessary because conditions are significantly different from those previously anticipated or (2) to the calculation of a lump-sum payment, which cannot later be revised.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistics support. The term does not include the normal administrative costs of processing the VECP or any increase in this contract's cost or price resulting from negative instant contract savings.

"Instant contract," as used in this clause, means this contract, under which the VECP is submitted. It does not include increases in quantities after acceptance of the VECP that are due to contract modifications, exercise of options, or additional orders. If this is a multiyear contract, the term does not include quantities funded after VECP acceptance. If this contract is a fixed-price contract with prospective price redetermination, the term refers to the period for which firm prices have been established.

"Instant unit cost reduction" means the amount of the decrease in unit cost of performance (without deducting any Contractor's development or implementation costs) resulting from using the VECP on this, the instant contract. If this is a service contract, the instant unit cost reduction is normally equal to the number of hours per line-item task saved by using the VECP on this contract, multiplied by the appropriate contract labor rate.

"Negative instant contract savings" means the increase in the cost or price of this contract when the acceptance of a VECP results in an excess of the Contractor's allowable development and implementation costs over the product of the instant unit cost reduction multiplied by the number of instant contract units affected.

"Net acquisition savings" means total acquisition savings, including instant, concurrent, and future contract savings, less Government costs.

"Sharing base," as used in this clause, means the number of affected end items on contracts of the contracting office accepting the VECP.

Sharing period, as used in this clause, means the period beginning with acceptance of the first unit incorporating the VECP and ending at a calendar date or event determined by the contracting officer for each VECP.

"Unit," as used in this clause, means the item or task to which the Contracting Officer and the Contractor agree the VECP applies.

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only;

(ii) In research and development (R&D) end items or R&D test quantities that is due solely to results of previous testing under this contract; or

(iii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (8) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) Identification of the unit to which the VECP applies.

(4) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

(5) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(6) A prediction of any effects the proposed change would have on collateral costs to the agency.

(7) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(8) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the VECP simultaneously to the Contracting Officer and to the Administrative Contracting Officer.

(e) Government action. (1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the

Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause and made either before or within a reasonable time after contract performance is completed. Until such a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing rates. If a VECP is accepted, the Contractor shall share in net acquisition savings according to the percentages shown in the table below. The percentage paid the Contractor depends upon (1) this contract's type (fixed-price, incentive, or cost-reimbursement), (2) the sharing arrangement specified in paragraph (a) above (incentive, program requirement, or a combination as delineated in the Schedule), and (3) the source of the savings (the instant contract, or concurrent and future contracts), as follows:

CONTRACTOR'S SHARE OF NET ACQUISITION SAVINGS

(Figures in percent)

Contract Type	Incentive (Voluntary)		Program Requirement (Mandatory)	
	Instant Contract Rate	Concurrent and Future Contract Rate	Instant Contract Rate	Concurrent and Future Contract Rate
Fixed-price (includes fixed-price-award-fee; excludes other fixed-price incentive contracts)	(1) 50	(1) 50	(1) 25	25
Incentive (fixed-price or cost) (other than award fee)	(2)	(1) 50	(1) 50	25
Cost-reimbursement (includes cost-plus-award-fee; excludes other cost-type incentive Contracts)	(3) 25	(3)	15	15

(1) The Contracting Officer may increase the Contractor's sharing rate to as high as 75 percent for each VECP.
(2) Same sharing arrangement as the contract's profit or fee adjustment formula.
(3) The Contracting Officer may increase the Contractor's sharing rate to as high as 50 percent for each VECP.

(g) Calculating net acquisition savings.

(1) Acquisition savings are realized when (i) the cost or price is reduced on the instant contract, (ii) reductions are negotiated in concurrent contracts, (iii) future contracts are awarded, or (iv) agreement is reached on a lump-sum payment for future contract savings (see subparagraph (i)(4) below). Net acquisition savings are first realized, and the Contractor shall be paid a share, when Government costs and any negative instant contract savings have been fully offset against acquisition savings.

(2) Except in incentive contracts, Government costs and any price or cost increases resulting from negative instant contract savings shall be offset against acquisition savings each time such savings are realized until they are fully offset. Then, the Contractor's share is calculated by multiplying net acquisition savings by the appropriate Contractor's percentage sharing rate (see paragraph (f) above). Additional Contractor shares of net acquisition savings shall be paid to the Contractor at the time realized.

(3) If this is an incentive contract, recovery of Government costs on the instant contract shall be deferred and offset against concurrent and future contract savings. The Contractor shall share through the contract incentive structure in savings on the instant contract items affected. Any negative instant contract savings shall be added to the target cost or to the target price and ceiling price, and the amount shall be offset against concurrent and future contract savings.

(4) If the Government does not receive and accept all items on which it paid the Contractor's share, the Contractor shall reimburse the Government for the proportionate share of these payments.

(h) Contract adjustment. The modification accepting the VECP (or a subsequent modification issued as soon as possible after any negotiations are completed) shall--

(1) Reduce the contract price or estimated cost by the amount of instant contract savings, unless this is an incentive contract;

(2) When the amount of instant contract savings is negative, increase the contract price, target price and ceiling price, target cost, or estimated cost by that amount;

(3) Specify the Contractor's dollar share per unit on future contracts, or provide the lump-sum payment;

(4) Specify the amount of any Government costs or negative instant contract savings to be offset in determining net acquisition savings realized from concurrent or future contract savings; and

(5) Provide the Contractor's share of any net acquisition savings under the instant contract in accordance with the following:

(i) Fixed-price contracts--add to contract price.

(ii) Cost-reimbursement contracts--add to contract fee.

(i) Concurrent and future contract savings.

(1) Payments of the Contractor's share of concurrent and future contract savings shall be made by a modification to the instant contract in accordance with subparagraph (h)(5) above. For incentive contracts, shares shall be added as a separate firm-fixed-price line item on the instant contract. The Contractor shall maintain records adequate to identify the first delivered unit for 3 years after final payment under this contract.

(2) The Contracting Officer shall calculate the Contractor's share of concurrent contract savings by (i) subtracting from the reduction in price negotiated on the concurrent contract any Government costs or negative instant contract savings not yet offset and (ii) multiplying the result by the Contractor's sharing rate.

(3) The Contracting Officer shall calculate the Contractor's share of future contract savings by (i) multiplying the future unit cost reduction by the number of future contract units scheduled for delivery during the sharing period, (ii) subtracting any Government costs or negative instant contract savings not yet offset, and (iii) multiplying the result by the Contractor's sharing rate.

(4) When the Government wishes and the Contractor agrees, the Contractor's share of future contract savings may be paid in a single lump sum rather than in a series of payments over time as future contracts are awarded. Under this

alternate procedure, the future contract savings may be calculated when the VECP is accepted, on the basis of the Contracting Officer's forecast of the number of units that will be delivered during the sharing period. The Contractor's share shall be included in a modification to this contract (see subparagraph (h)(3) above) and shall not be subject to subsequent adjustment.

(5) Alternate no-cost settlement method. When, in accordance with subsection 48.104-4 of the Federal Acquisition Regulation, the Government and the Contractor mutually agree to use the no-cost settlement method, the following applies:

(i) The Contractor will keep all the savings on the instant contract and on its concurrent contracts only.

(ii) The Government will keep all the savings resulting from concurrent contracts placed on other sources, savings from all future contracts, and all collateral savings.

(j) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount, as specified in paragraph (h)(5) of this clause, by a rate from 20 to 100 percent, as determined by the Contracting Officer, of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price, target price, target cost, or estimated cost, at the time the VECP is accepted, or $100,000, whichever is greater. The Contracting Officer will be the sole determiner of the amount of collateral savings.

(k) Relationship to other incentives. Only those benefits of an accepted VECP not rewardable under performance, design-to-cost (production unit cost, operating and support costs, reliability and maintainability), or similar incentives shall be rewarded under this clause. However, the targets of such incentives affected by the VECP shall not be adjusted because of VECP acceptance. If this contract specifies targets but provides no incentive to surpass them, the value engineering sharing shall apply only to the amount of achievement better than target.

(l) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of $100,000 or more and may include one in subcontracts of lesser value. In calculating any adjustment in this contract's price for instant contract savings (or negative instant contract savings), the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs, and any value engineering incentive payments to a subcontractor, clearly resulting from a VECP accepted by the Government under this contract. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that the payments shall not reduce the Government's share of concurrent or future contract savings or collateral savings.

(m) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering clause of contract . . . . . , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://www.arnet.gov/far
http://farsite.hill.af.mil
http://www.dtic.mil/dfars

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

ATTACHMENTS

The following list of attachments are included as a separate document in Acrobat format:

ORNO 385-1-2 – May 1986
Contractor Guidelines for:

1. The preparation of the Accident Prevention Proposal (Safety Plan)
2. The preparation of the Activity Hazard Analysis

APPENDIX A – HELPFUL HINTS FOR THE PREPARATION OF THE CONTRACTOR'S ACCIDENT PREVENTION PROPOSAL

APPENDIX B – GUIDELINES FOR THE PREPARATION OF ACTIVITY HAZARDS ANALYSIS

SAMPLE – ACTIVITY HAZARD ANALYSIS

EXHIBIT B – LISTOF CONTRACT DRAWINGS

SUBMITTAL REGISTER – ENG FORM 4288-R. JAN 97 – INSTRUCTIONS

CONTRACTOR'S QUALITY CONTROL REPORT (QCR)

DEFICIENCY LIST

Section K - Representations, Certifications and Other Statements of Offerors

CLAUSES INCORPORATED BY REFERENCE

52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	APR 1991
52.225-2	Buy American Act Certificate	MAY 2002

CLAUSES INCORPORATED BY FULL TEXT

52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to –

(i) Those prices,

(ii) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provison _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of provision)

52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(a) Definitions.

“Common parent,” as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“Taxpayer Identification Number (TIN),” as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

___ TIN:._____

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other _____

(f) Common parent.

___ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

___ Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)

(a) Definition. Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it ( ) is a women-owned business concern.

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals--

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.214-14 PLACE OF PERFORMANCE--SEALED BIDDING (APR 1985)

(a) The bidder, in the performance of any contract resulting from this solicitation, [ ] intends, [ ] does not intend [check applicable box] to use one or more plants or facilities located at a different address from the address of the bidder as indicated in this bid.

(b) If the bidder checks "intends" in paragraph (a) above, it shall insert in the spaces provided below the required information:

Place of Performance (Street, Address, City, County, State, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other than Bidder
_____	_____
_____	_____
_____	_____
_____	_____

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 541990 (insert NAICS code).

(2) The small business size standard is$6,000,000.00.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

( ) Black American.

( ) Hispanic American.

( ) Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

( ) Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

( ) Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

( ) Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the

preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-2 EQUAL LOW BIDS. (OCT 1995)

(a) This provision applies to small business concerns only.

(b) The bidder's status as a labor surplus area (LSA) concern may affect entitlement to award in case of tie bids. If the bidder wishes to be considered for this priority, the bidder must identify, in the following space, the LSA in which the costs to be incurred on account of manufacturing or production (by the bidder or the first-tier subcontractors) amount to more than 50 percent of the contract price.

_____

_____

(c) Failure to identify the labor surplus area as specified in paragraph (b) of this provision will preclude the bidder from receiving priority consideration. If the bidder is awarded a contract as a result of receiving priority consideration under this provision and would not have otherwise received award, the bidder shall perform the contract or cause the contract to be performed in accordance with the obligations of an LSA concern.

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) [ ] It has, [ ] has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) [ ] It has, [ ] has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.222-25 AFFIRMATIVE ACTION COMPLIANCE (APR 1984)

The offeror represents that

(a) [ ] it has developed and has on file, [ ] has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or

(b) [ ] has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

[ ] (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

[ ] (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

[ ] (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

[ ] (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

[ ] (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

52.225-2 BUY AMERICAN ACT CERTIFICATE (MAY 2002)

(a) The offeror certifies that each end product, except those listed in paragraph (b) of this provision, is a domestic end product as defined in the clause of this solicitation entitled “Buy American Act --Supplies” and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United

States. The offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic and products.

(b) Foreign End Products:

Line Item No.:----------

Country of Origin:----------

(List as necessary)

(c) The Government will evaluate offers in accordance with the policies and procedures of Part 25 of the Federal Acquisition Regulation.

(End of provision)

Section L - Instructions, Conditions and Notices to Bidders

CLAUSES INCORPORATED BY REFERENCE

52.204-6	Data Universal Numbering System (DUNS) Number	JUN 1999
52.214-3	Amendments To Invitations For Bids	DEC 1989
52.214-4	False Statements In Bids	APR 1984
52.214-5	Submission Of Bids	MAR 1997
52.214-6	Explanation To Prospective Bidders	APR 1984
52.214-7	Late Submissions, Modifications, and Withdrawals of Bids	NOV 1999
52.214-9	Failure To Submit Bid	JUL 1995
52.214-10	Contract Award--Sealed Bidding	JUL 1990
52.214-12	Preparation Of Bids	APR 1984
52.214-34	Submission Of Offers In The English Language	APR 1991
52.214-35	Submission Of Offers In U.S. Currency	APR 1991
52.237-1	Site Visit	APR 1984
252.201-7000	Contracting Officer's Representative	DEC 1991
252.204-7004	Required Central Contractor Registration	NOV 2001

CLAUSES INCORPORATED BY FULL TEXT

52.214-15 PERIOD FOR ACCEPTANCE OF BIDS (APR 1984)

In compliance with the solicitation, the bidder agrees, if this bid is accepted within 60 calendar days from the date specified in the solicitation for receipt of bids, to furnish any or all items upon which prices are bid at the price set opposite each item, delivered at the designated point(s), within the time specified in the Schedule.

(End of clause)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a **requirements firm-fixed price service** contract resulting from this solicitation.

(End of clause)

52.216-21 REQUIREMENTS (OCT 1995)

(a) This is a requirements contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies or services specified in the Schedule are estimates only and are not purchased by this contract. Except as this contract may otherwise provide, if the Government's requirements do not result in orders in the quantities described as "estimated" or "maximum" in the Schedule, that fact shall not constitute the basis for an equitable price adjustment.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. Subject to any limitations in the Order Limitations clause or elsewhere in this contract, the Contractor shall furnish to the Government all supplies or services specified in the Schedule and called for by orders issued in

accordance with the Ordering clause. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(c) Except as this contract otherwise provides, the Government shall order from the Contractor all the supplies or services specified in the Schedule that are required to be purchased by the Government activity or activities specified in the Schedule.

(d) The Government is not required to purchase from the Contractor requirements in excess of any limit on total orders under this contract.

(e) If the Government urgently requires delivery of any quantity of an item before the earliest date that delivery may be specified under this contract, and if the Contractor will not accept an order providing for the accelerated delivery, the Government may acquire the urgently required goods or services from another source.

(f) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract for orders placed under that year after expiration date of the year of the contract be it base year or option year.

(End of clause)

52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

U. S. Army Corps of Engineers
Nashville District
ATTN: Cassandra D. Mora
P. O. Box 1070
Nashville, TN 37202-1070

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://www.arnet.gov/far

http://farsite.hill.af.mil
http://www.dtic.mil/dfars

(End of provision)

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

See SECTION J (LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS) – LIST OF CONTRACT DRAWINGS.

(End of clause)

WAGE DETERMINATION

WAGE DETERMINATION NO: 94-2187 REV (18) AREA: IN,EVANSVILLE

WAGE DETERMINATION NO: 94-2187 REV (18) AREA: IN,EVANSVILLE
REGISTER OF WAGE DETERMINATIONS UNDER | U.S. DEPARTMENT OF LABOR
FOR OFFICIAL USE ONLY BY FEDERAL AGENCIES PARTICIPATING IN MOU WITH DOL

| WASHINGTON D.C. 20210
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|
| Wage Determination No.: 1994-2187
William W.Gross Division of | Revision No.: 18
Director Wage Determinations| Date Of Last Revision: 05/29/2002

States: Indiana, Kentucky, Tennessee
Area: Indiana Counties of Perry, Posey, Spencer, Vanderburgh, Warrick
Kentucky Counties of Butler, Caldwell, Christian, Crittenden, Daviess, Hancock, Henderson, Hopkins, Livingston, Logan, Lyon, McLean, Muhlenberg, Ohio, Todd, Trigg, Union, Warren, Webster
Tennessee Counties of Montgomery, Stewart

Fringe Benefits Required Follow the Occupational Listing

OCCUPATION TITLE	MINIMUM WAGE RATE
Administrative Support and Clerical Occupations	
Accounting Clerk I	8.19
Accounting Clerk II	9.20
Accounting Clerk III	10.83
Accounting Clerk IV	13.08
Court Reporter	11.22
Dispatcher, Motor Vehicle	12.53
Document Preparation Clerk	10.27
Duplicating Machine Operator	10.27
Film/Tape Librarian	9.79
General Clerk I	8.41
General Clerk II	9.26
General Clerk III	11.41
General Clerk IV	11.60
Housing Referral Assistant	11.83
Key Entry Operator I	8.93
Key Entry Operator II	11.60
Messenger (Courier)	7.98
Order Clerk I	8.40
Order Clerk II	10.97
Personnel Assistant (Employment) I	9.43
Personnel Assistant (Employment) II	10.40
Personnel Assistant (Employment) III	12.79
Personnel Assistant (Employment) IV	12.99
Production Control Clerk	15.54
Rental Clerk	9.37
Scheduler, Maintenance	9.81
Secretary I	9.81
Secretary II	10.69
Secretary III	11.83
Secretary IV	12.64
Secretary V	13.86
Service Order Dispatcher	11.50
Stenographer I	10.12
Stenographer II	10.77
Supply Technician	12.64
Survey Worker (Interviewer)	9.76

Switchboard Operator-Receptionist	8.89	
Test Examiner	10.69	
Test Proctor	10.69	
Travel Clerk I	9.05	
Travel Clerk II	9.61	
Travel Clerk III	10.13	
Word Processor I	9.31	
Word Processor II		10.43
Word Processor III	11.69	
Automatic Data Processing Occupations		
Computer Data Librarian	9.74	
Computer Operator I	9.87	
Computer Operator II	11.56	
Computer Operator III	14.12	
Computer Operator IV	15.66	
Computer Operator V	17.39	
Computer Programmer I (1)	13.49	
Computer Programmer II (1)	16.75	
Computer Programmer III (1)	20.77	
Computer Programmer IV (1)	23.96	
Computer Systems Analyst I (1)	21.47	
Computer Systems Analyst II (1)	24.24	
Computer Systems Analyst III (1)	27.62	
Peripheral Equipment Operator	11.26	
Automotive Service Occupations		
Automotive Body Repairer, Fiberglass	16.34	
Automotive Glass Installer	14.85	
Automotive Worker	14.85	
Electrician, Automotive	15.61	
Mobile Equipment Servicer	13.31	
Motor Equipment Metal Mechanic	16.34	
Motor Equipment Metal Worker	14.85	
Motor Vehicle Mechanic	16.34	
Motor Vehicle Mechanic Helper	12.53	
Motor Vehicle Upholstery Worker	14.09	
Motor Vehicle Wrecker	14.85	
Painter, Automotive	15.61	
Radiator Repair Specialist	14.85	
Tire Repairer	12.86	
Transmission Repair Specialist	16.34	
Food Preparation and Service Occupations		
Baker	12.15	
Cook I	10.90	
Cook II	12.15	
Dishwasher	8.49	
Food Service Worker	8.12	
Meat Cutter	12.15	
Waiter/Waitress		8.97
Furniture Maintenance and Repair Occupations		
Electrostatic Spray Painter	15.61	
Furniture Handler	11.12	
Furniture Refinisher	15.61	
Furniture Refinisher Helper	12.56	
Furniture Repairer, Minor	14.09	

Upholsterer	15.61	
General Services and Support Occupations		
Cleaner, Vehicles	8.12	
Elevator Operator	8.12	
Gardener	10.92	
House Keeping Aid I	7.27	
House Keeping Aid II	8.12	
Janitor	8.12	
Laborer, Grounds Maintenance	8.99	
Maid or Houseman	7.27	
Pest Controller	13.06	
Refuse Collector	10.49	
Tractor Operator	10.27	
Window Cleaner	8.97	
Health Occupations		
Dental Assistant	11.04	
Emergency Medical Technician (EMT)/Paramedic/Ambulance Driver		10.93
Licensed Practical Nurse I	10.21	
Licensed Practical Nurse II	11.45	
Licensed Practical Nurse III	12.81	
Medical Assistant	9.77	
Medical Laboratory Technician	12.36	
Medical Record Clerk	9.77	
Medical Record Technician	13.54	
Nursing Assistant I	8.23	
Nursing Assistant II	9.25	
Nursing Assistant III	10.09	
Nursing Assistant IV	11.33	
Pharmacy Technician	12.19	
Phlebotomist	11.91	
Registered Nurse I		14.84
Registered Nurse II		18.17
Registered Nurse II, Specialist	18.17	
Registered Nurse III	21.99	
Registered Nurse III, Anesthetist	21.99	
Registered Nurse IV	26.34	
Information and Arts Occupations		
Audiovisual Librarian	17.49	
Exhibits Specialist I	13.75	
Exhibits Specialist II	17.02	
Exhibits Specialist III	19.16	
Illustrator I	13.75	
Illustrator II	17.02	
Illustrator III	19.16	
Librarian	18.40	
Library Technician	10.68	
Photographer I	12.29	
Photographer II	13.75	
Photographer III	17.02	
Photographer IV	19.16	
Photographer V	20.79	
Laundry, Dry Cleaning, Pressing and Related Occupations		
Assembler	7.20	
Counter Attendant	7.20	

Dry Cleaner	8.00	
Finisher, Flatwork, Machine	7.20	
Presser, Hand	7.20	
Presser, Machine, Drycleaning	7.82	
Presser, Machine, Shirts	7.20	
Presser, Machine, Wearing Apparel, Laundry	7.20	
Sewing Machine Operator	8.56	
Tailor	9.07	
Washer, Machine	7.85	
Machine Tool Operation and Repair Occupations		
Machine-Tool Operator (Toolroom)	15.61	
Tool and Die Maker	18.63	
Material Handling and Packing Occupations		
Forklift Operator	12.20	
Fuel Distribution System Operator	16.85	
Material Coordinator	18.55	
Material Expediter		18.55
Material Handling Laborer	12.75	
Order Filler	9.83	
Production Line Worker (Food Processing)	12.52	
Shipping Packer	11.47	
Shipping/Receiving Clerk	11.01	
Stock Clerk (Shelf Stocker; Store Worker II)	12.88	
Store Worker I	9.79	
Tools and Parts Attendant	13.46	
Warehouse Specialist	13.31	
Mechanics and Maintenance and Repair Occupations		
Aircraft Mechanic	16.90	
Aircraft Mechanic Helper	12.56	
Aircraft Quality Control Inspector	17.67	
Aircraft Servicer	14.23	
Aircraft Worker	15.15	
Appliance Mechanic	15.61	
Bicycle Repairer	12.87	
Cable Splicer	16.90	
Carpenter, Maintenance	15.61	
Carpet Layer	15.15	
Electrician, Maintenance	18.77	
Electronics Technician, Maintenance I	16.41	
Electronics Technician, Maintenance II	19.57	
Electronics Technician, Maintenance III	25.43	
Fabric Worker	14.09	
Fire Alarm System Mechanic	16.34	
Fire Extinguisher Repairer	13.32	
Fuel Distribution System Mechanic	17.59	
General Maintenance Worker	14.85	
Heating, Refrigeration and Air Conditioning Mechanic	16.34	
Heavy Equipment Mechanic	16.34	
Heavy Equipment Operator	16.34	
Instrument Mechanic	18.80	
Laborer	9.20	
Locksmith	16.03	
Machinery Maintenance Mechanic	17.74	
Machinist, Maintenance	16.18	

Maintenance Trades Helper	12.56	
Millwright	20.89	
Office Appliance Repairer	16.03	
Painter, Aircraft	15.61	
Painter, Maintenance	15.61	
Pipefitter, Maintenance	17.71	
Plumber, Maintenance	16.92	
Pneudraulic Systems Mechanic	16.90	
Rigger	16.90	
Scale Mechanic	15.15	
Sheet-Metal Worker, Maintenance	17.22	
Small Engine Mechanic	14.85	
Telecommunication Mechanic I	17.40	
Telecommunication Mechanic II	20.95	
Telephone Lineman	16.90	
Welder, Combination, Maintenance	16.34	
Well Driller	16.34	
Woodcraft Worker	16.90	
Woodworker	13.32	
Miscellaneous Occupations		
Animal Caretaker	9.65	
Carnival Equipment Operator	10.97	
Carnival Equipment Repairer	11.66	
Carnival Worker	8.12	
Cashier	6.88	
Desk Clerk	8.22	
Embalmer	17.93	
Lifeguard	9.42	
Mortician	16.57	
Park Attendant (Aide)	11.84	
Photofinishing Worker (Photo Lab Tech., Darkroom Tech)	9.57	
Recreation Specialist	11.40	
Recycling Worker	13.25	
Sales Clerk	9.69	
School Crossing Guard (Crosswalk Attendant)	8.93	
Sport Official	9.25	
Survey Party Chief (Chief of Party)	14.26	
Surveying Aide		8.47
Surveying Technician (Instr. Person/Surveyor Asst./Instr.)	12.97	
Swimming Pool Operator	12.77	
Vending Machine Attendant	10.77	
Vending Machine Repairer	12.77	
Vending Machine Repairer Helper	10.77	
Personal Needs Occupations		
Child Care Attendant	8.22	
Child Care Center Clerk	11.30	
Chore Aid	8.04	
Homemaker	11.92	
Plant and System Operation Occupations		
Boiler Tender	17.97	
Sewage Plant Operator	17.17	
Stationary Engineer	18.79	
Ventilation Equipment Tender	12.80	
Water Treatment Plant Operator	15.86	

Protective Service Occupations		
Alarm Monitor	11.35	
Corrections Officer		12.67
Court Security Officer	13.52	
Detention Officer	12.93	
Firefighter	14.33	
Guard I	8.04	
Guard II	11.97	
Police Officer	15.25	
Stevedoring/Longshoremen Occupations		
Blocker and Bracer	15.15	
Hatch Tender	15.20	
Line Handler	15.20	
Stevedore I	13.97	
Stevedore II	15.20	
Technical Occupations		
Air Traffic Control Specialist, Center (2)	28.21	
Air Traffic Control Specialist, Station (2)	19.46	
Air Traffic Control Specialist, Terminal (2)	21.43	
Archeological Technician I	11.93	
Archeological Technician II	13.33	
Archeological Technician III	16.52	
Cartographic Technician	17.93	
Civil Engineering Technician	16.96	
Computer Based Training (CBT) Specialist/ Instructor	21.47	
Drafter I	11.56	
Drafter II	12.97	
Drafter III	14.52	
Drafter IV	17.98	
Engineering Technician I	12.40	
Engineering Technician II	13.89	
Engineering Technician III	15.54	
Engineering Technician IV	19.26	
Engineering Technician V	23.55	
Engineering Technician VI	25.40	
Environmental Technician	18.64	
Flight Simulator/Instructor (Pilot)	24.24	
Graphic Artist	17.63	
Instructor	19.53	
Laboratory Technician	16.13	
Mathematical Technician	16.20	
Paralegal/Legal Assistant I	11.26	
Paralegal/Legal Assistant II	13.32	
Paralegal/Legal Assistant III	16.29	
Paralegal/Legal Assistant IV	19.70	
Photooptics Technician	19.20	
Technical Writer	20.36	
Unexploded (UXO) Safety Escort	17.93	
Unexploded (UXO) Sweep Personnel	17.93	
Unexploded Ordnance (UXO) Technician I	17.93	
Unexploded Ordnance (UXO) Technician II	21.70	
Unexploded Ordnance (UXO) Technician III	26.01	
Weather Observer, Combined Upper Air and Surface Programs (3)		13.60
Weather Observer, Senior (3)	15.12	

Weather Observer, Upper Air (3)	13.60
Transportation/ Mobile Equipment Operation Occupations	
Bus Driver	11.50
Parking and Lot Attendant	8.98
Shuttle Bus Driver	12.02
Taxi Driver	10.28
Truckdriver, Heavy Truck	14.05
Truckdriver, Light Truck	10.93
Truckdriver, Medium Truck	11.50
Truckdriver, Tractor-Trailer	14.05

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:
HEALTH & WELFARE: $2.15 an hour or $86.00 a week or $372.67 a month
VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 8 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)
HOLIDAYS: A minimum of ten paid holidays per year: New Year's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)
THE OCCUPATIONS WHICH HAVE PARENTHESES AFTER THEM RECEIVE THE FOLLOWING BENEFITS (as
numbered):
1) Does not apply to employees employed in a bona fide executive, administrative, or professional capacity as defined and delineated in 29 CFR 541. (See CFR 4.156)
2) APPLICABLE TO AIR TRAFFIC CONTROLLERS ONLY - NIGHT DIFFERENTIAL: An employee is entitled to pay for all work performed between the hours of 6:00 P.M. and 6:00 A.M. at the rate of basic pay plus a night pay differential amounting to 10 percent of the rate of basic pay.
3) WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).
HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.
A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordance, explosive, and incendiary ordnance material other than small arms

ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordance, explosives, and incendiary material differential pay.
** UNIFORM ALLOWANCE **
If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:
The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

** NOTES APPLYING TO THIS WAGE DETERMINATION **

Source of Occupational Title and Descriptions:
The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations," Fourth Edition, January 1993, as amended by the Third Supplement, dated March 1997, unless otherwise indicated. This publication may be obtained from the Superintendent of Documents, at 202-783-3238, or by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Copies of specific job descriptions may also be obtained from the appropriate contracting officer.
REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444
(SF 1444)}
Conformance Process:
The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.
The process for preparing a conformance request is as follows:
1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).
2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including

information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.
3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).
4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.
5) The contracting officer transmits the Wage and Hour decision to the contractor.
6) The contractor informs the affected employees.
Information required by the Regulations must be submitted on SF 1444 or bond paper.
When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

INSTRUCTIONS TO BIDDERS

SITE INSPECTION PRIOR TO SUBMITTING OFFER

SITE VISITS - Site Visits may be coordinated by telephone (COLLECT CALLS NOT ACCEPTED) between the hours of 7:30 AM and 3:00 PM, exclusive of Federal holidays. Call Beryl C. Newsome at 615-736-7933 or Jim Cook at 615-736-5679 to schedule the number of representatives attending from your company for the conference and the lock site visit. No foreign nationals are permitted to attend the visit to the lock site. They are permitted to attend the conference.

A conference and tour of the site will be conducted on 28 August 2002. The conference meeting will be held at the BB&T Bank Branch in Lake City on Highway 62 midway between Kentucky and Barkley Dams beginning at 0930. The tour of the site will begin immediately after the conference and conclude at approximately noon. The contractor will be responsible for getting to the conference and tour site.

CONDITIONS AFFECTING THE WORK

Bidders should visit the site and take such other steps as may be reasonably necessary to ascertain the nature and location of the work and the general and local conditions that can affect the work or the cost thereof. Failure to do so will not relieve bidders from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Government will assume no responsibility for any understanding or representations concerning conditions made by any of its officers or agents prior to the execution of the contract, unless included in the Invitation for Bid, the specifications or related documents.

RESPONSIBILITY DETERMINATION

To establish responsibility, the apparent low bidder may be required by the Government to submit a statement regarding previous experience in performing comparable work, his/her business and technical organization, financial resources, and plant available to be used in performing the work. The apparent low bidder may be required to provide a minimum of three references representing three different projects for similar work completed within the past five years including the current Company Name or Organization Name, address, contact individual at the organization, and telephone number for each reference.

PUBLIC OPENING OF BIDS

Bids will be publicly opened at the time set for opening in the Invitation for Bids. Their content will be made public for the information of bidders and others interested, who may be present.

BIDDER'S ADDRESS

Prospective bidders should indicate in the offer, the address to which payment and/or correspondence should be mailed, if such address is different from that shown for the bidder.

AMENDMENTS PRIOR TO DATE SET FOR OPENING BIDS

The right is reserved as the interest of the Government may require, to or amend the specifications or drawings or both prior to the date set for opening bids. Such revisions and amendments, if any, will be announced by an amendment or amendments to this Invitation for Bids. If the revisions and amendments are of a nature which requires material changes in quantities or prices bid or both, the date set for opening bids may be postponed by such number of days as in the opinion of the issuing officer will enable bidders to revise their bids. In such cases, the amendment will include an announcement of the new date for opening bids. All amendments will be posted on the Nashville District Corps of Engineers web site: http://www.lrn.usace.army.mil/contracting It is the responsibility of the bidder to check the web site for any amendments to this solicitation. The Government is not responsible for notification to the bidder of posted amendments.

INSURANCE REQUIREMENTS

Prior to commencement of work, your firm shall procure and maintain during the period of performance under this contract the following minimum amounts of insurance. The contractor shall provide proof of insurance coverage prior to commencing work.

a. Workmen's Compensation	Statutory
Employer's Liability	$100,000
b. Comprehensive General Liability	
Per occurrence (Bodily injury)	$500,000
c. Comprehensive Automobile Liability	
Per person	$200,000
Per occurrence (Bodily injury)	$500,000
Per occurrence (Property damage)	$20,000

BIDDING MATERIAL

Specifications, drawings and proposal forms can be obtained at no cost from Nashville District Corps of Engineers Contracting Home Page http://www.orn.usace.army.mil/contracting or from Nashville District Corps of Engineers,

Contracting, PO Box 1070, Nashville, TN 37202-1070. Contractors are encouraged to use the Home Page to obtain solicitations and drawings.

NOTICE TO BIDDERS - USE OF CLASS I OZONE-DEPLETING SUBSTANCES

(1) In accordance with Section 326 of P.L. 102-484, the Government is prohibited from awarding any contract which includes a specification or standard that requires the use of a Class I ozone-depleting substance (ODS) identified in Section 602(a) of the Clean Air Act, (42 U.S.C. 767a(a)), or that can be met only through the use of such a substance unless such use has been approved, on an individual basis, by a senior acquisition official who determines that there is no suitable substitute available.

(2) To comply with this statue, the Government has conducted a best efforts screening of the specifications and standards associated with this acquisition to determine whether they contain any ODS requirements. To the extent that ODS requirements were revealed by this review, they are identified below with the disposition determined in each case.

(3) If bidders possess any special knowledge about any other ODSs required directly or indirectly at any level of contract performance, the U.S. Army would appreciate if such information was surfaced to the Contracting Officer for appropriate action. To preclude delay to the procurement, bidders should provide any information as soon as possible after release of this solicitation and prior to the submission of offers to the extent practicable. It should be understood that there is no obligation on bidders to comply with this request and that no compensation can be provided for doing so.

ODS Identified	Specification/Standard	Disposition
	None	

EXPLANATION OF PROVISION/CLAUSE NUMBERS UTILIZED IN THIS SOLICITATION:

(1) Federal Acquisition Regulation (FAR) provisions/clauses are numbered as follows: 52.252-7.

(2) Defense Acquisition Regulation Supplement (DFARS) provisions/clauses are numbered as follows: 52.252-7000.

(3) Army Federal Acquisition Regulation Supplement (AFARS), provisions/clauses are numbered as follows: 52.252-9000.

(4) Where the seventh digit of a provision/clause number is a "9", this indicates a provision/clause from the Engineer Federal Acquisition Regulation Supplement (EFARS), provisions/clauses are numbered as follows: 52.252-5000.

Section M - Evaluation Factors for Award

CLAUSES INCORPORATED BY REFERENCE

52.214-10	Contract Award--Sealed Bidding	JUL 1990
52.217-5	Evaluation Of Options	JUL 1990
52.232-15	Progress Payments Not Included	APR 1984

REQUEST FOR REFERENCES

RESPONSIBILITY OF BIDDER

Award will be made as a whole to one offeror. A bid price must be submitted for all line items located in Section B for consideration. Failure to do so may result in rejection of the offer.

ORNP 385-1-2
May 1986

US Army Corps
of Engineers®
Nashville District

Contractor Guidelines For:

1. The Preparation of the Accident Prevention Proposal (Safety Plan)

2. The Preparation of the Activity Hazard Analysis

APPENDIX A

HELPFUL HINTS FOR THE PREPARATION OF THE CONTRACTOR'S ACCIDENT PREVENTION PROPOSAL

1. The following are minimum considerations for developing the Contractor's Accident Prevention Proposal. These helpful hints raise a number of basic questions that need to be answered for the Contractor's safety plan to be an effective management tool for use by on-site supervision. This plan shall be specific for this job.

a. Time Of Submittal. The safety plan and the activity hazard analysis for the first phases of the job shall be acceptable prior to start of work. The plan and analysis shall be submitted for review within ten (10) calendar days after notice of award so that discussion can take place at the pre-construction conference. Job hazard analysis for later phases of work shall be acceptable prior to the start of that phase. It is recommended that the activity hazard analysis for the next phase of work be submitted twenty days before scheduled phase start in order to give ample time for review. The safety plan shall contain a list of the phases to complete the works. Each phase shall have an anticipated start date. On short jobs one submittal covering the total job will be sufficient.

b. Responsible Individual(s). Who will be responsible for enforcing the safety program and what are the basic duties? How will this person be held accountable? Include a statement that there will be compliance with pertinent provisions of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

c. Subcontractor Supervision. What procedures will be followed to assure that Subcontractor activities are fully integrated into the project safety plan and activity hazards analysis?

d. Indoctrination of New Employees Before Start of Work. Every employee is required to receive an initial safety briefing prior to starting work. The safety plan shall establish the procedure for ensuring the following items are covered:

(1) General safety policy and pertinent provisions of EM-385-1-1.

(2) Requirements for employee and project safety.

(3) Employee's responsibilities for property and safety of others.

(4) Employee's responsibilities for reporting all accidents.

(5) Medical facilities and required treatment.

(6) Procedures for reporting or correcting unsafe conditions or practices.

(7) Safe clearance procedures.

(8) Fire fighting and other emergency procedures.

(9) Activity hazard analysis.

(10) Personal protective equipment.

e. On-the Job Safety Meetings.

(1) When and where will monthly safety meetings for all supervisors be held? Who will conduct the meetings and what will be covered?

(2) How will the weekly “tool box” meetings be conducted?

f. Accident Reporting. The contract requires prompt reporting of injuries, fire, and property damage. Initial reports must be made immediately to the on-site Government representative and written reports shall be submitted within one to four working days. How does the safety plan reflect responsibilities assigned for immediate oral reporting, accident investigation, determining proper corrective action, and preparation of reports?

g. Sanitary Facilities. What toilet facilities will be provided considering the number and distribution of employees? What other considerations are planned for drinking water and washing facilities?

h. First Aid and Medical. Describe first aid facilities and qualifications of attendant. List telephone numbers of physician, ambulance, and hospital.

i. Housekeeping. How will access ways to work areas be maintained during work hours? What procedures will be followed to assure daily cleanup?

j. Fire Protection. Considering the availability of existing fire protection, what general types and size of extinguishers and fire barrels will be required to protect buildings, shops, and storage areas as well as to deal with special hazards such as welding and flammable liquids? Name the local professional fire fighters. List their telephone number.

k. Machinery and Mechanized Equipment. How will inspection of cranes, trucks, and other mechanical equipment be accomplished? Frequency, by whom, what type of records will be kept?

2. Posters, contests, safety awards help develop positive attitudes toward safety rules. What methods, if any, will be used on this project? Most accidents are preventable by well thought out and executed safety plans.

APPENDIX B

GUIDELINES FOR THE PREPARATION OF ACTIVITY HAZARDS ANALYSIS

1. Activity Hazards Analysis Development. Before starting any major phase of work an activity hazards analysis shall be developed and reviewed with the Government representative. This analysis will evaluate anticipated hazards and outline the proposed methods and techniques which will be utilized to accomplish the work in a safe manner.

2. Phases of Work. Listed are examples of major phases of work, but this list is not all inclusive. Phases of work shall be tailored to the specific characteristics of the contract.

Clearing and Grubbing
Earthwork
Trench Excavation
Blasting
Concrete Placement
Steel Erection
Masonry
Electrical Work, Exterior
Mechanical Work
Carpentry

3. Sample Activity Hazards Analysis. The enclosed sample shows a possible format for a phase safety plan that might be submitted on a representative project. This sample incorporates a phase of work, the safety hazards that may be encountered, and precautionary actions that will be taken to overcome these hazards. Each safety hazard identified in the third vertical column must be accompanied by the appropriate paragraph reference number from EM 385-1-1. If none exists in EM 385-1-1, so state in the third vertical column of the Activity Hazard Analysis.

4. Indoctrination. Employees performing the work must be made aware of the activity hazard analysis. For this reason, an important part of any phase plan is the indoctrination of all employees who will be performing the work.

SAMPLE

ACTIVITY HAZARD ANALYSIS			
Contract No. DACW62-96-C-0000	Project Install Water and Sewer Lines		Facility Blue Heron Recreational Area
Date 1 October 1996	Location Big South Fork		Estimated Start Date 19 November 1996
Item	Phase of Work	Safety Hazard	Precautionary Actions to be taken
1	Trench Excavation	Hitting Existing Utilities (par. 25.A.10)	1. Find and mark existing utilities before excavating. 2. Use care while excavating. 3. Shore existing utilities crossing trench. 4. Instruct operator. 5. Watch for overhead electrical lines.
		Cave-Ins (pars. 25.B.03, 25.C.01 and 25.D.05)	1. Slope sides, depending on depth and soil type. 2. Shoring when necessary. 3. Lay back material at least 2 ft. from edge depending on depth & soil type. 4. Have access ladder or steps in other than shallow trenches. 5. Backfill as soon as possible. 6. Instruct workmen as to cave-ins hazards and precautions.
		Head injuries from falling rocks or clods (par. 25.A.07)	1. Wear hardhats. 2. Scale potential fuels from sides.
		Backing over workmen (par. 16.B.01 and 25.A.09)	1. Back-up alarms on equipment. 2. Have helper to guide operator while backing. 3. Instruct workmen not to stand or walk behind equipment.
		Pedestrian Accidents (pars. 25.B.01 and 25.B.03	1. Rope off or fence trench. 2. Mark clearly. 3. Backfill as soon as possible.
		Back Injuries (par. 14.A.01)	1. Instruct workmen how to lift materials. 2. Instruct workmen to get help and/or to use lifting equipment.
		Falling "(pars. 25.B.01 and 25.B.03	1. Maintain employee alertness in and around trenches.

EXHIBIT B
LIST OF CONTRACT DRAWINGS

GENERAL
61N850-1 INDEX OF DRAWINGS
61N850-2 SITE PLAN PRE-PROJECT CONDITIONS
61N850-3 SITE PLAN SIX PHASES OF INSTRUMENTATION INSTALLATION
61N850-4 PRELIMINARY UPSTREAM LOCK EXCAVATION CONFIGURATION
61N850-5 PRELIMINARY DOWNSTREAM LOCK EXCAVATION CONFIGURATION

MONOLITHS
61N851-1 EXISTING LOCK INSTRUMENTATION PLAN VIEW LAYOUT
61N851-2 EXISTING LOCK INSTRUMENTATION PLAN & SECTION VIEW MONOLITH L3
61N851-3 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L4, L5, L6
61N851-4 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L4, L5, L6
61N851-5 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L7, L8, L9
61N851-6 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L7, L8, L9
61N851-7 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L10, L11, L12
61N851-8 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L10, L11, L12
61N851-9 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L13, L14, L15
61N851-10 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L13, L14, L15
61N851-11 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L16, L17
61N851-12 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L16, L17
61N851-13 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L18-A, L18-B
61N851-14 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L18-A, L18-B
61N851-15 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L19, L20, L21
61N851-16 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L19, L20, L21
61N851-17 EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L22, L23, L24
61N851-18 EXISTING LOCK INSTRUMENTATION SECTION VIEW MONOLITHS L22, L23, L24
61N851-19 EXISTING LOCK INSTRUMENTATION PLAN & SECTION VIEW MONOLITH L25

INSTRUMENTATION
61N852-1 UPSTREAM COFFERDAM INSTRUMENTATION PLAN
61N852-2 UPSTREAM COFFERDAM INSTRUMENTATION DETAILS
61N852-3 DOWNSTREAM COFFERDAM INSTRUMENTATION PLAN
61N852-4 DOWNSTREAM COFFERDAM INSTRUMENTATION DETAILS
61N852-5 RELATIVE BLOCK MOVEMENT DEVICES & SAW-CUT DETAILS SHEET 1
61N852-6 RELATIVE BLOCK MOVEMENT DEVICES & SAW-CUT DETAILS SHEET 2
61N852-7 LOCK INCLINOMETER DETAILS
61N852-8 LOAD CELL AND MISCELLANEOUS DETAILS
61N852-9 EXISTING LOCK OPERATIONS BUILDING AND SITE MONITORING STATION (SMS)

FOR INFORMATION ONLY
67N410 TEMPORARY RAW WATER SYSTEM SHEET 1
67N411 TEMPORARY RAW WATER SYSTEM SHEET 2
67N412 TEMPORARY RAW WATER SYSTEM SHEET 3

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION: **Instrumentation Program, Kentucky Lock**
Marshall County, Kentucky

CONTRACTOR

SPECIFICATION SECTION

ACTIVITY NO. a.	TRANS-MITTAL NO. b.	ITEM NO. c.	SPECIFICATION PARAGRAPH NUMBER d.	DESCRIPTION OF ITEMS SUBMITTED e.	TYPE OF SUBMITTAL: DATA f.	DRAWINGS g.	INSTRUCTIONS h.	SCHEDULES i.	STATEMENTS j.	REPORTS k	CERTIFICATES l.	SAMPLES m.	RECORDS n.	O & M MANUALS o.	CLASSIFICATION: INFORMATION ONLY p.	GOVERNMENT APPROVED q.	REVIEWER r.	CONTRACTOR SCHEDULE DATES: SUBMIT s.	APPROVAL NEEDED BY t.	MATERIAL NEEDED BY u.	CONTRACTOR ACTION: CODE v.	DATE w.	SUBMIT TO GOVERNMENT x.	GOVERNMENT ACTION: CODE y.	DATE z.	REMARKS aa.
			EM 385-1-1 Para. 01.A.07	Safety Plan				X	X							X										
			EM 385-1-1 Para. 01.A.09	Activity Hazard Analyses					X							X										
			TP-2.5 (a)	Instrumentation Work Plan	X	X	X	X	X							X										
			TP-2.5 (b)	Instrumentation Coordinator & Manufacturer					X							X										
			TP-2.5 (c)	Instrumentation System Plan for Reliability Check		X			X							X										
			TP-2.5 (d)	Instrumentation System As-Built Plan & Reports		X		X		X			X		X											
			TP-2.5 (e)	Instrumentation System O&M Reports		X	X			X			X		X											
			TP-2.5 (f)	Instrumentation Data & Plot Reports		X	X			X			X		X											
			TP-2.5 (g)	Instrumentation System Final Report		X	X		X	X			X		X											
			TP-3.8	Submittal Register (ENG Form 4288)				X								X										
			TP-4.3	Quality Control Plan				X	X							X										
			TP-5.1	As-Built Drawings		X			X							X										

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

ITEM NO. *a.*	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)* *b.*	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See instruction no. 8)* *c.*	NO. OF COPIES *d.*	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE *g.*	VARIATION *(See instruction No. 6)* *h.*	FOR CE USE CODE *i.*
				SPEC. PARA. NO. *e.*	DRAWING SHEET NO. *f.*			

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated.

_____

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A -- Approved as submitted.

B -- Approved, except as noted on drawings.

C -- Approved, except as noted on drawings. Refer to attached sheet resubmission required.

D -- Will be returned by separate correspondence.

E -- Disapproved (See attached).

F -- Receipt acknowledged.

FX -- Receipt acknowledged, does not comply as noted with contract requirements.

G -- Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

CONTRACTOR'S QUALITY CONTROL REPORT (QCR) (ER 1180-1-6)	DATE:	REPORT NO.
CONTRACT NUMBER AND NAME OF CONTRACTOR:	DESCRIPTION AND LOCATION OF THE WORK:	

WEATHER CLASSIFICATION:	CLASSIFICATION:
CLASS A No interruptions of any kind from weather conditions occurring on this or previous shifts.	CLASS _____
CLASS B Weather occurred during this shift that caused a complete stoppage of all work.	TEMPERATURE:
CLASS C Weather occurred during this shift that caused a partial stoppage of work.	
CLASS D Weather overhead excellent or suitable during shift. Work completelly stopped due to previous adverse weather.	MAX _____ MIN _____
CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse weather.	PRECIPITATION:
OTHER Explain.	INCHES _____

CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:
(Attach listof items of equipment either idle or working as appropriate.)

a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____

1. WORK PERFORMED TODAY:(Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above.)

2. TYPE AND RESULTS OF INSPECTION:(Indicate wether: P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

4. VERBAL INSTRUCTIONS RECEIVED:(List any instruction given by the Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. REMARKS: Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)

6. SAFETY: Include any infractions of approved safety plan, safety manual or instruction from Government personnel. Specify corrective action taken.)

SAFETY INSPECTOR

7. CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

_____

CONTRACTOR QUALITY CONTROL SYSTEM MANAGER

DEFICIENCY LIST

CONTRACT NO.: _____ PROJECT: _____

DEFIC. NO.	DESCRIPTION	DEFICIENCY		CORRECTION		COMMENTS
		DATE OBSERVED	CQC REPORT NO.	DATE CORRECTED	CQC REPORT NO.	